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Animal and Plant Health Inspection Service

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Cataloging Prep

Subject: Issuing a Second Edition of the Pine Shoot Beetle Program Manual

Date: January 16, 1998

To: Holders of the Pine Shoot Beetle Program Manual

Here is a copy of the new edition of the Pine Shoot Beetle Program Manual. This second edition supersedes the existing manual and its updates through Transmittal 03/95-01. From September 1992 until September 1995, the program manual was expanded to meet the needs of the program. Since then, the manual's original structure was updated by increasing the type size and changing the page layout. The accessibility was improved by adding figure numbers, table numbers, headings, and tabs. Also, the content was updated. Some of the changes include the following:

- Removed the option to treat infested pine, Christmas trees (Regulatory Section)
- Added examples of compliance agreements for holding yards and receiving mills approved to handle, utilize, and store logs, lumber, and stumps of pine (Appendix)
- Updated the list of quarantined areas and added State maps (Appendix 7)
- Provided for Appendix 13, which is about the Compliance Management Program
- Made the usual changes that occur when a program operates for 3-6 years, for example, procedures, and lists of contacts and resources

To support the survey and regulatory activities occurring this year, do the following to update your manual:

From the initial (first) edition:	Use the new (second) edition to:
1. Remove from the title page through page 5.10, Appendix 2.	6. Insert from the title page through the tab for Appendix 2 and its contents (page 5.12).
2. Keep the color-printed pages used to identify pine trees.	7. Insert the color-printed pages used to identify pine trees.
3. Remove from page 6.1, Appendix 3 through page 7.4, Appendix 4.	8. Insert from the tab for Appendix 3 through the tab for Appendix 4 and its contents (page 7.6).
4. Keep the color-printed pages used to identify the pine shoot beetle.	9. Insert the color-printed pages used to identify the pine shoot beetle.
5. Remove the remaining pages.	10. Insert the remaining pages.

The Manuals Unit plans to print and distribute Appendix 13 after the Compliance Management Program is evaluated and updates are made. Also, we anticipate changes in the program this year. When this happens, changes will be made to the program manual. At that time, we will consider moving the manual to online access only.

Al Elder
Deputy Administrator
Plant Protection and Quarantine

1 Enclosure

United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

Plant Protection
and Quarantine

PINE SHOOT BEETLE PROGRAM MANUAL

Fiscal Year 1998

UPDATE RECORD

Instructions;

1. Record the Transmittal Number and the date you received the update in the appropriate column.
2. Report any missing updates to APHIS Distribution, 4700 River Road Unit 1, Riverdale, MD 20737-1229

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INTRODUCTION
Orientation to the Pine Shoot Beetle Program

History:

The pine shoot beetle (*Tomicus piniperda*) was detected on a Christmas tree farm near Cleveland, Ohio in July 1992. Immediately after the identity of the specimen was confirmed, the Animal and Plant Health Inspection Service (APHIS) began working with other plant protection agencies to determine the extent of the infestation.

Subsequent surveys demonstrated the presence of the pine shoot beetle from Illinois to New York along the Great Lakes. Most detections were in Scotch pine with a few in Eastern white pine, Austrian pine, red pine, and jack pine. Detections occurred in Christmas tree farms, nurseries, and established ornamental plantings.

In November 1992, an interim rule was established for 7CFR part 301.50 to quarantine portions of Illinois, Indiana, Michigan, New York, Ohio, and Pennsylvania. The regulation also restricts the interstate movement of regulated articles from the quarantined areas. In January 1993, another rule was established, adding to the quarantine 100 percent inspection and a cold treatment option for nursery stock and Christmas trees. In May 1993, an interim rule was established adding regulated articles, revising the certification of pine seedlings, amending the certification of logs and lumber, and adding counties to the quarantined area. In June 1993, an interim rule was established allowing certain pine transplants to be certified for interstate movement and adding counties to the quarantined area. In November 1993, an interim rule was established adding counties to the quarantined areas, and adding a new treatment available for Christmas trees. In August 1994 and October 1994, interim rules were effective adding

History: (continued)

counties to the quarantined areas. Then, on December 29, 1994, an interim rule was effective adding counties to the quarantined areas. On November 3, 1995, an interim rule was effective adding counties to the quarantined areas and adding pine wreaths and garland to the list of regulated articles. In August 1996 APHIS finalized the Compliance Management Program for Christmas trees and nursery stock. This program applies integrated pest management to commercial production, resulting in a significant decrease in populations of the pine shoot beetle at growing sites. Successful completion of all program components allows for unrestricted movement of regulated articles. For more information about the Compliance Management Program, refer to Appendix 13. On December 3, 1997, an interim rule was effective adding counties to the quarantined areas.

This pest has been intercepted repeatedly at many United States ports. Therefore, the pine shoot beetle was probably introduced into the United States through ship dunnage (rough-sawn lumber used to brace and stabilize cargo on ocean vessels) from infested areas of Europe and Asia.

Many species of pine (*Pinus* spp.) serve as host for any life stage of this pest, but Scotch pine is preferred. Currently, this pest causes tree damage and economic loss across a wide geographic range in Europe and Asia.

Additional facts and information on the history of the pine shoot beetle can be found in the National Agricultural Pest Information System (NAPIS) at http://www.ceris.purdue.edu/napis/.

Pest Information:

The pine shoot beetle is an insect known as *Tomicus piniperda*. It is a highly destructive pest of pine trees.

Adult pine shoot beetles are cylindrical, 3-5mm long, with shiny black heads and smooth prothoraxes. The wing covers vary from reddish-brown to black. Larvae are typical crescent shaped, legless grubs.

The pine shoot beetle can cause serious damage to the new growth of healthy trees as well as to the trunks of weak and dying trees and bark covered logs and lumber.

Additional pest information is in Appendix 4 and NAPIS.

Program Priorities:

1. Cooperate with the States in enforcing the pine shoot beetle regulation.

2. Work with the States in conducting delimiting surveys around the known infested areas.

3. Complete a nationwide detection survey to determine if there are any other areas infested with the pine shoot beetle.

Restrictions:

Treatment recommendations listed in this manual are based on uses authorized under provisions of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended. Directions appearing on the label, Section 18 Emergency Exemptions, and manual instructions must be followed. Nevertheless, some treatments may damage commodities.

Restrictions (continued)

PPQ personnel may not make any warranty or representations, expressed or implied, concerning the use of these pesticides.

The occasional use of registered trade names in this manual does not imply an endorsement of those products or of the manufacturers by the United States Department of Agriculture (USDA), APHIS.

INTRODUCTION
Roles and Responsibilities (Who's Involved)

State Departments of Agriculture and Natural Resources, Forest Service (FS), and APHIS personnel are contributing to the implementation of the Pine Shoot Beetle Program.

The Program Coordinator is Christine Markham, Regional Program Manager, Plant Protection and Quarantine (PPQ), APHIS, in Moorestown, New Jersey.

Individuals who enforce the regulation include PPQ line personnel and State Departments of Agriculture and Natural Resources personnel. Individuals who conduct the surveys include PPQ line personnel, State Departments of Agriculture and Natural Resources personnel, FS personnel, and Cooperative Agricultural Pest Survey (CAPS) personnel. Those who plan the surveys are generally port directors and State plant health directors at designated PPQ locations.

Survey Personnel:

PPQ line personnel, State Departments of Agriculture and Natural Resources personnel, FS personnel, and CAPS personnel will provide support in the field doing the following tasks:

1. Conduct visual surveys

2 Conduct trapping surveys

3. Facilitate the movement of regulated articles

Port Directors or State Plant Health Directors:

1. Prepare to conduct surveys
2. Report survey results
3. Coordinate and direct regulatory activities

Program Coordinator:

Coordinates all efforts while meeting the priorities of the program.

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INTRODUCTION
How to Use This Manual

Manual's Structure:

The overall structure of the Pine Shoot Beetle Program Manual is standard to every domestic program manual. The main sections are the following: Introduction, Survey, Regulatory, Appendixes, and Index. The program requires no Control section at this time.

Each main section is tabbed and is independent, containing the step-by-step procedures for surveying and regulating the pine shoot beetle. Also, each main section has an Introduction which contains general information relating to the section's main content.

Each overview is a list of steps described in the section that follows. The overview can be used as a checklist for those familiar with how to do the steps.

The Appendixes are used as they relate to other sections of the Manual. In some places, an Appendix is referenced; while in other places, it is assumed that you accessed an Appendix to get the necessary information.

If the Contents section is not specific enough, use the Index to find a topic and its page number.

Users:

The primary users of the Program Manual are the PPQ line personnel and State Departments of Agriculture and Natural Resources personnel who are conducting visual and trapping surveys, and facilitating the movement of regulated articles.

Application:

Use the Program Manual on the job as a reference when preparing to conduct surveys and when facilitating the movement of regulated articles.

Related Sources:

The following documents provide the legal basis for the procedures found in the Program Manual.

- Federal Plant Pest Act, sections 105 and 107
- Plant Quarantine Act, section 10
- 7CFR Part 301.50, Pine Shoot Beetle

Additional information related to the survey operations for pine shoot beetle can be found in NAPIS at http://www.ceris.purdue.edu/napis/. Topics include the following:

- Alerts and Updates
- CFR
- Compliance Management Program
- Descriptions of survey methods
- History of the pine shoot beetle
- Instructions and form for entering survey data
- List of quarantined areas
- Maps of quarantined areas

Reporting Problems:

If you want to suggest an improvement or to identify a problem with the content of this Manual, complete and mail the Comment Sheet at the back of this Manual. If the problem is urgent, call Dawn Wade at 301-663-8598 x144.

If you disagree with policy in this Manual, contact the Program Coordinator, Christine Markham at 609-757-5073.

Updating the Manual and Address List:

PPQ's Manuals Unit is responsible for maintaining and distributing this manual. The address of the Manuals Unit is as follows:

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Use E-mail, FAX, telephone, or mail when requesting services and always provide the following:

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Updating the Manual and Address List (continued)

If you detect an error, report it by using the Comment Sheet at the end of this manual. Or, if it is easier, call, send an E-mail message, or FAX Dawn Wade or anyone else in PPQ's Manuals Unit at the address listed above. When ordering copies of this manual or adding and changing addresses and the number of manuals you are receiving, include the following information:

List the title: Pine Shoot Beetle Program Manual
Indicate either the new edition or a transmittal number
List the number of copies you need
List the new, corrected, or deleted address

INTRODUCTION
Preventive Safety Measures

Safety measures involving personnel, the public, and the use of equipment are the responsibility of all individuals working on the Pine Shoot Beetle Program. Supervisors must advise employees of safety and health regulations and notify employees of known hazardous conditions. Employees must comply with all safety and health regulations. When necessary, wear protective equipment and report hazardous situations to your supervisor. Contact your supervisor immediately when an accident or personal injury has occurred.

Safety Reminders When Surveying:

- Beware of aggressive animals (for example, dogs, bulls, etc.) near the survey site.
- If surveying in an area where Lyme disease occurs, wear clothing that is protective against deer ticks. Apply an approved tick repellent to clothing (i.e., Permanone© which is available at local department stores). Inspect yourself after conducting visual surveys and servicing traps in a deer tick area. Prevention is the only way to avoid getting Lyme disease. Contact your local public health officials for other preventative measures to take.
- Avoid contact with poisonous plants.
- Carry plenty of drinking water.
- Wear proper clothing (long pants, sturdy shoes or boots).
- In areas with poisonous snakes, wear snake leggings and carry a snakebite kit.
- Use gates for entering properties; watch for electric fences!
- Respect resident's property.
- Carry Material Safety Data Sheets for all lures and pesticides.

Vehicle Safety Reminders:

- Check the condition of the vehicle before starting daily activities.
- Check to see that passage is clear before backing up the vehicle.
- Select a safe parking place for the vehicle while servicing traps or when leaving the vehicle.
- Drive slowly when roads are unfamiliar, winding, narrow, or unpaved.
- Always use your seat belts.
- Obey the posted speed limits. DON'T SPEED!
- Keep your vehicle free of debris and unsecured items.
- Tell your supervisor immediately whenever you're involved in an accident.
- Carry wooden blocks to block your tires when parking on a steep slope.
- Carry sufficient repair tools (jack and lug wrench) and safety equipment (flares and first aid kit).

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SURVEY
Introduction

Overview:

The Survey section of this Manual explains procedures for conducting the following activities associated with the nationwide survey plan for the pine shoot beetle (*Tomicus piniperda*). These activities will be completed by port directors and State plant health directors (SPHD's) who will plan the surveys and by survey personnel who will conduct the surveys.

- Prepare to Conduct Surveys
- Conduct Visual Surveys
- Conduct Trapping Surveys
- Report Survey Results

Purpose:

The detection survey will determine if areas are free of or infested with the pine shoot beetle. Where the pine shoot beetle is present, the delimiting survey will determine the limits of the infestation.

SURVEY
Prepare to Conduct Surveys

Overview:

The steps in ***Figure 2-1*** are an overview of preparing to conduct surveys that support the detection and delimiting survey aspects of the Pine Shoot Beetle Program. PPQ port directors or SPHD's are responsible for preparing to conduct surveys and report survey results. They are the primary users of this section of the Manual.

Step 1:	Acquire the Items Needed to Prepare Survey Kits
Step 2:	Designate Survey Areas
Step 3:	Schedule Personnel
Step 4:	Train and Supervise Survey Personnel

Figure 2-1: Overview of preparing to conduct surveys

Step 1: Acquire the Items Needed to Prepare Survey Kits:

Use the following list of items as a guide to acquire and prepare survey kits for conducting visual surveys.

- State and county maps
- Pine Shoot Beetle Survey Field Data Worksheets or other designated worksheets
- Lists of Christmas tree farms and plantations, nurseries, and lumber mills in your State--obtain from the State Plant Regulatory Official (SPRO)
- Ball point pens--for completing worksheets and forms
- Pencils--for submitting suspect beetles
- Knife
- Gloves
- Binoculars (optional)
- Magnifying lens (optional)
- Mailing labels

(continued on next page)

Step 1 (continued)

- Labels for vials
- Vials or jars with alcohol
- Mailers and boxes
- Solar block sunglasses or brown tinted glasses (optional)
- Global Positioning System (GPS) receiver (optional)
- Supply of PPQ Form 391, Specimens for Determination
- Paper bags--for possible infested shoots
- Supply of pest alert pamphlets
- Pine Shoot Beetle Program Manual

Additional items needed to conduct trapping surveys are listed below:

- Traps: Lindgren® 8 funnel traps, log traps, or Theysohn® traps.* See Appendix 12 for a description and illustrations of the traps.
- Lure for the Lindgren® and Theysohn® traps: two 16 ml bottles of alpha-pinene.* Lure should be stored as cold as possible in a refrigerator or freezer until traps are placed in the field.
- Vapona strips or soapy water for killing beetles trapped in the collection trays of the traps. Note that when soapy water is used, the traps need to be checked more frequently.
- Material Safety Data Sheets for lure and pesticide
- Extra trap parts--for repairing damaged traps

(continued on next page)

*Lindgren® funnel traps and lure are available from Phero Tech Inc., 7572 Progress Way, Delta, B.C., Canada V4G1E9. Tel: 604-940-9944, FAX: 604-940-9433. OR, Suite 1551-1574 Gulf Rd., Point Roberts, WA 98281.
*Theysohn® traps are available from El-Tech Technology, Inc., 7 Woodland Ave., Larchmont, NY 10538, Tel: 914-834-8205, FAX: 914-834-8903.

Step 1 (continued)

- String, wire, 3/8" concrete reinforcement bar (called a rebar), and/or wooden stakes (5 or 7 feet long)--for hanging traps. **NOTE:** When purchasing rebars for the Lindgren® traps, have the top bent at a 90° angle to the long axis of the rebar. See an illustration of the Lindgren® trap in place in Appendix 12.
- Identification labels for traps
- Number labels for traps
- Permanent markers or grease pencils for numbering traps
- Hammer (optional for placing rebars or stakes into the ground)
- Flagging ribbon or marking tape (optional for marking trap locations)
- Forceps
- Sorting pan, strainer
- Detergent and water solution in a 2 liter bottle
- Vinyl or latex disposable gloves, large box
- Screwdriver or stiff-bladed putty knife (for inspecting log traps)
- A piece of plastic (for laying under log traps while inspecting)
- All other supplies listed for conducting visual surveys

Step 2: Designate Survey Areas:

Survey areas are designated differently depending on whether you are conducting a detection survey or a delimiting survey for the pine shoot beetle. Therefore, the guidelines are divided between those for detection surveys and those for delimiting surveys.

Detection Survey:

Designate high-risk counties to be surveyed. Those counties meeting one or more of the criteria below can be considered

Step 2 (continued)

high-risk and can be designated as survey areas. The designated high-risk counties will serve as the survey areas from which sites will be selected by port directors and SPHD's or survey personnel. Use the following listed criteria to determine which counties in your State are considered high-risk.

- Borders the Great Lakes or other inland waterways such as Mississippi and Ohio Rivers exposed to international cargo vessels.
- Contains ports where shipments of host material may have been received from infested areas of foreign countries.
- Contains saw mills, pulp mills, gathering yards where timber operations gather material before distribution.
- Contains an abundance of pine host material such as Christmas tree farms or plantations, nurseries, privately grown lots where there are more than 25 pine trees.
- Contains inland locations where substantial shipments of pine Christmas trees or pine nursery stock were received during the past few years from known pine shoot beetle infested areas.

Delimiting Survey:

On a map, construct a grid of points 5 miles apart extending two tiers of counties from the closest infested county or a minimum distance of 25 miles outward from the last infested county as a result of the detection survey. When constructing the grid points, consider the scale of the map. The grid points will serve as the survey areas from which a site will be selected by port directors and SPHD's or survey personnel.

NOTE: If a positive infestation is found at a site while surveying for delimiting the pine shoot beetle, extend the grid of points two

Step 2 (continued)

tiers of counties from the closest infested county or a minimum distance of 25 miles beyond the positive site.

Step 3: Schedule Personnel:

In order to schedule personnel to conduct visual and trapping surveys, you must know the appropriate time to conduct each type of survey and when detection and delimiting surveys are considered valid and complete.

Appropriate Time to Conduct Visual Surveys:

Visual surveys must be conducted during July, August, September, or October. During these months the pine shoot beetles are in the shoots. Low temperatures of 20°F (frost conditions) prompt the pine shoot beetle to leave the shoots and move to the base of the pine trees and then move to dead and felled trees under the bark to over winter. In some southern States, visual surveys might be conducted through the winter months.

Appropriate Time to Conduct Trapping Surveys:

Traps should be placed in survey areas during the late winter, with all traps in place no later than March 1 in southern areas and March 15 in northern areas. All traps are to be in place before the first captures of beetles are expected, which depends on temperature. The pine shoot beetle will begin flying when daytime temperatures exceed 12°C (53.6°F) for at least two consecutive days. Once in place, the Lindgren® and Theysohn® traps should be serviced on a maximum 2-week schedule until approximately June 1. Note that the best time to check log traps is during the first 2-4 weeks after beetles begin to fly. After this time, the logs will be attacked by additional domestic species, making it necessary to sort and screen finds.

Step 3 (continued)

When a Detection Survey Is Valid and Negative:

A valid, negative detection survey consists of negative results from any combination of visual and trapping surveys which have been conducted at a minimum of 10 sites in designated high-risk counties where the survey personnel received adequate training and supervision. Also, the survey data must be entered into the National Agricultural Pest Information System (NAPIS) following the guidelines in Appendix 6 of this manual.

When a Delimiting Survey Is Completed:

A delimiting survey is completed when it extends two tiers of counties from the closest infested county or a minimum distance of 25 miles beyond a known infestation with negative results.

Step 4: Train and Supervise Survey Personnel:

Before surveying begins, provide adequate training and supervision to support the following activities.

1. Identify pine host trees. Refer to Appendix 2.

2. Identify symptoms of pest infestation using the Pest Alert pamphlet and set of slides. Refer to Appendix 3.

3. Detect the pine shoot beetle. Refer to Appendix 4.

4. Collect and label specimens. Refer to the section on conducting visual surveys.

Step 4 (continued)

5. How to assemble, place, and service traps. Refer to pages 2.34-2.50, Appendix 12 for descriptions and illustrations of traps, and the Pest Information Sheets for Lindgren® funnel traps provided by Phero Tech, Inc.*

6. Fill out a survey worksheet and PPQ Form 391. Refer to the section on conducting visual and trapping surveys. Note that this Manual does **not** cover how to fill out PPQ Form 391.

Below is a list of resources available in the field to help train survey personnel:

1. Pest Alert pamphlet on the Common Pine Shoot Beetle; USDA Forest Service, Northeastern Area; 1992.

2. Fact sheet on the pine shoot beetle; USDA, APHIS, PPQ; February 1993.

3. Screening Aids for Exotic Bark Beetles in the Northeastern United States, USDA Forest Service, Northeastern Area, NA-TP-11-94.

4. VHS video tape: Common Pine Shoot Beetle; Six minute tape covering recognition of the adult beetle--what it looks like, what to look for in the field. The cost is $20.00, payable to the University of Illinois. Write for a copy from:

James E. Appleby
NHS 607 East Peabody
Champaign, IL 61820

(continued on next page)

*Phero Tech Inc., 7572 Progress Way, Delta, B.C., Canada V4G1E9. Tel: 604-940-9944, FAX: 604-940-9433. OR, Suite 1551-1574 Gulf Rd., Point Roberts, WA 98281.

Step 4 (continued)

5. A Field Guide to Trees and Shrubs, George A. Petrides and Roger Tory Peterson; Peterson's Field Guide Series.

6. The Audubon Society Field Guide to North American Trees; Elbert L. Little; Alfred A Knopf, Inc.

7. A Guide to Field Identification, Trees of North America; C. Frank Brockman; Western Publishing Company, Inc.

8. North American Trees; Richard J. Preston, Jr.; Iowa State University Press.

9. Reader's Digest North American Wildlife, Reader's Digest Association, Inc.

10. State Department publications on identification guides to State trees.

11. NAPIS data base where there is information on survey methods, reporting results, and facts and history about the pine shoot beetle.

SURVEY
Conduct Visual Surveys

Overview:

The steps in ***Figure 2-2*** are an overview of the procedures for conducting visual surveys to support the detection and delimiting survey aspects of the Pine Shoot Beetle Program. Survey personnel are responsible for conducting visual surveys. They are the primary users of this section of the Manual.

Step 1: Prepare to Conduct Visual Surveys
Step 2: Contact the Property Owner
Step 3: Select the Number of Pine Trees to Inspect
Step 4: Inspect the Pine Trees
Step 5: Mail Worksheets, Forms, and Suspect Beetles
Step 6: Take Action on Results of the Inspection

Figure 2-2: Overview of conducting visual surveys

Step 1: Prepare to Conduct Visual Surveys:

After receiving information about the survey area from your supervisor, prepare to conduct visual surveys.

1. Using a State or county map, identify sites within the survey area where there will most likely be at least 25 specimens of host material (pine trees). Refer to the examples listed below.

    a. Christmas tree farms and plantations
    b. Nurseries
    c. Ornamental or commercial plantings of pine trees
    d. Plantings of pine trees at or near saw mills or pulp mills

(continued on next page)

Step 1 (continued)

e. Plantings of pine trees at or near gathering yards (central locations where timber operations gather material before distribution)
f. Areas of abundant pine trees that are 12-20 feet high and are poorly managed
g. Reforestation plantings, wildlife plantings, roadside plantings
h. Wind breaks and shelter belts
I. Privately grown stands of pine trees (not where FS personnel will be surveying)

Make local contacts and identify local sources to help you find survey sites. For example, State plant regulatory official, Department of Natural Resources, Forest Service, county agent, Cooperative Extension Service specialist, State Highway Department, and owners of Christmas tree farms and plantations, nurseries, saw and pulp mills. Use **Table 2-1** to locate the sites for visual surveys.

Table 2-1: Locate the Number of Sites for Visual Surveys

If you are conducting visual surveys for:	Then:
Detection	LOCATE a minimum of 10 sites within a designated high-risk county. The 10 sites should be widely scattered throughout the county.
Delimiting	BEGIN at a designated grid point and LOCATE the nearest site of at least 25 pine trees. (**NOTE:** The grid points should have been constructed on a map 5 miles apart extending 25 miles outward from the last infested county.)

Step 1 (continued)

2. Map out a route to the survey sites.

3. Determine the time needed to conduct the visual surveys. Visual surveys must be conducted during July, August, September, or October.

4. Check the contents of the survey kit to make sure you have the items necessary to conduct visual surveys. (A detailed list of items is under the Survey section of this Manual titled Prepare to Conduct Surveys.)

_____ State or county map with sites identified and a route clearly marked
_____ Lists of local contacts and sources
_____ Supply of pest alert pamphlets
_____ Ball point pens and pencils
_____ Knife and gloves
_____ Vials or jars with alcohol, vial labels
_____ Supply of paper bags
_____ Mailers, boxes, mail labels
_____ Supply of Pine Shoot Beetle Survey Field Data Worksheets
_____ Supply of PPQ Form 391, Specimens for Determination
_____ Pine Shoot Beetle Program Manual

Step 2: Contact the Property Owner:

Once you get to a selected site, contact the property owner or a representative of the property where you want to conduct a visual survey to obtain their permission.

Step 2 (continued)

1. Give the owner or a representative the following information.

a. Who--Identify yourself (give a business card if available; temporary employees should be issued a USDA Employee Identification Card).

b. What--Visually inspect shoots of pine trees. Ask the owner or a representative what kind of pine trees are on the property and the quantity of pine trees. Use Appendix 2 to help with identifying host material. Also, remember that you want to inspect a minimum of 25 pine trees.

c. Where--Show or explain the location of the pine trees, or ask the owner or a representative where on the property pine trees are located.

d. When--Only this one time, if the results are negative. There may be additional inspections if the results are positive.

e. Why--Give the Pest Alert pamphlet which explains the importance of the Pine Shoot Beetle Regulation and the basis for conducting a nationwide survey plan to detect and delimit the pine shoot beetle.

2. Record initial information on a Pine Shoot Beetle Survey Field Data Worksheet. The remainder of the worksheet will be completed while you conduct the survey. See an example in Appendix 5.

a. Block 1--Check the box for visual survey and the box for either detection or delimiting survey.

Step 2 (continued)

b. Blocks 2-4--Fill in.

c. Block 5--Enter the street address of the property.

d. Block 6--Enter the street address of the owner if it is different from the address of the property.

e. Block 7--Enter the type of property, for example, a nursery, tree farm, Christmas tree farm, residence.

f. Block 8--Enter the name of the property owner and the telephone number.

g. Block 9--Enter the date of the survey.

h. Block 10--Enter the time of day.

I. Block 11--If you can identify a section number or a legal description that the property falls within by using the map, then enter the section number or legal description. Otherwise, leave Block 11 blank and let the PPQ port director or SPHD record the section number or legal description on their copy.

j. Block 12--If you are using a GPS receiver or if you can identify the latitudinal and longitudinal coordinates of the survey site using the map, then enter those coordinates. Otherwise, leave Block 12 blank and let the PPQ port director or SPHD record the coordinates on their copy.

k. Block 13--Enter the years the property owner has had the property, and the acres which are used for the type of activity entered in Block 7 (nursery, Christmas trees, residence).

Step 2 (continued)

l. Block 14--Check the appropriate weather conditions.

m. Block 15--Enter the kind of pine trees you will be surveying. Use Appendix 2 and other identification guides to help with identifying host material.

n. Blocks 16-22, 24--Leave blank; later you will fill in some of these blocks.

o. Block 23--Draw a map of the property including nearby roads or landmarks.

Step 3: Select the Number of Pine Trees to Inspect:

Use **Table 2-2** to select the number of pine trees to inspect. Ideally there should be a minimum of 25 pine trees. Concentrate on inspecting the selected number of pine trees which will be a representative sample of the entire site.

Table 2-2: Select the Number of Pine Trees to Inspect

If the total number of pine trees at the site is:	Then inspect the following number of pine trees:
25 - 100	100 percent
101-1,000	At least 100 trees, but no more than 20 percent of trees
More than 1,001	10 percent of trees, but no more than 300 trees

Step 4: Inspect the Pine Trees:

As you enter the property, take an overall view of the situation to see if any symptoms are readily observed in a specific area. First, inspect trees in those areas.*

Inspect the pine trees to find the pine shoot beetle using Appendixes 3 and 4. A summary of the inspection techniques is below.

1. Look all around the trees for symptoms and evidence of pest infestation.

   a. Discolored shoots, needles, or tips of shoots
   b. Entrance holes in the sides of shoots and cream colored pitch tubes
   c. Drooping or broken shoots attached or fallen
   d. Shoots which pop off the tree when briskly brushed

2. If you see a symptom of pest infestation, dissect the shoot to verify the evidence. Evidence would include presence of a clean gallery and/or presence of the pine shoot beetle. Pine shoot beetle galleries are empty (open) and do not contain frass. See **Table 2-3** for the action to take when you find evidence of infestation.

   a. Cut off the branch with the damaged shoot.
   b. Rotate the shoot, looking for entrance holes.
   c. Laterally slice the branch open with a knife.
   d. Look for galleries and the pine shoot beetle.

*Field personnel have reported that using "solar-block" or brown tinted glasses enhances the ability to see discolored shoots.

Step 4 (continued)

Table 2-3: Take Action When You Find Evidence of Infestation

If you:	Then:
Find beetles that resemble the pine shoot beetle (*Tomicus piniperda*)	1. COLLECT the beetles. 2. PLACE the beetles in a vial with alcohol. Put all the beetles found at one site in one vial. 3. CONTINUE on to substep 3.
Find suspected evidence of the pine shoot beetle (clean gallery)	EXPAND your inspection at the site. If after expanding your inspection, you find no beetles, then: 1. REMOVE the damaged shoots. 2. PLACE them in a paper bag. 3. RECORD the location of the survey site on the bag. 4. BRING the damaged shoots back with you to the office for a more careful examination. 5. CONTINUE on to substep 4.
Don't find beetles nor do you find evidence of the pine shoot beetle	CONTINUE on to substep 4.

Step 4 (continued)

3. Only for positive inspection results

   a. Fill out a vial label in **pencil**, and place the label in the vial with the suspect beetles (see caution statement below). Include on the label the following information:

      Date of survey
      Your name
      Kind of pine tree from which collected
      Collection Number from a PPQ Form 391 (to be filled out)

CAUTION: Always use a pencil to fill out vial labels. Ink from pens and markers bleeds and dissolves when in contact with water or alcohol.

   b. Complete a PPQ Form 391, Specimens for Determination.

   c. It is difficult to identify pine to species. Therefore, if you are unable to identify the host pine tree to species or you find a suspect beetle on a host tree other than pine, then cut off a twig from the host tree and place it in a bag. Record on the bag information that will easily connect the host tree specimen with the submitted beetle (i.e., date of survey, your name, collection number from PPQ Form 391). Following guidelines set by your Region, send the host tree specimen off to be identified (i.e., port director or SPHD, local taxonomist, designated PPQ botanist or identifier).

Step 4 (continued)

4. Record the results of your visual survey on the Pine Shoot Beetle Survey Field Data Worksheet.

a. Block 16--Enter how many trees you inspected.

b. Block 17--Check the condition of the trees, and enter their stand age and height.

c. Block 18--Use **Table 2-4** to record the results of your visual survey as positive or negative.

Table 2-4: Complete Block 18 on the Pine Shoot Beetle Survey Field Data Worksheet

If you:	Then:
Find beetles	CHECK the box for **positive** results
Find suspected evidence of the pine shoot beetle (clean gallery)	CHECK the box for **negative** results
Did not find beetles nor did you find evidence of the pine shoot beetle	

Step 4 (continued)

d. Block 19--Use **Table 2-5** to complete Block 19.

Table 2-5: Complete Block 19 on the Pine Shoot Beetle Survey Field Data Worksheet

If you:	Then:
Found beetles	• ENTER the number of beetles you collected. • ENTER the number of beetles you will send forward for identification. • ENTER the collection number of a PPQ Form 391 you will complete.
Found suspected evidence of the pine shoot beetle	LEAVE Block 19 blank.
Did not find beetles nor did you find evidence of the pine shoot beetle	

e. Block 20--Print your name, agency, and telephone number.

f. Block 21--Enter the date the survey worksheet will be submitted.

g. Block 24--Use **Table 2-6** to determine if remarks are appropriate.

Step 4 (continued)

Table 2-6: Complete Block 24 on the Pine Shoot Beetle Survey Field Data Worksheet

If you:	Then:
Found beetles	ENTER any remarks that are appropriate to the site.
Found suspected evidence of the pine shoot beetle	ENTER that you collected damaged shoots.
Did not find beetles nor did you find evidence of the pine shoot beetle	ENTER any remarks that are appropriate to the site.

5. GO to the next site until all sites in the survey area are inspected (return to Step 2).

Step 5: Mail Worksheets, Forms, and Suspect Beetles

At the end of each survey day, mail all documented and collected results of your visual surveys.

1. Only for positive inspection results:

   a. PACK a box with the following items. You can put more than one vial in a box as long as the accompanying documents are also included in the box.

      (1) Copy of the Pine Shoot Beetle Survey Field Data Worksheet
      (2) PPQ Form 391, Specimens for Determination
      (3) Vial(s) with suspect beetles and label(s)

Step 5 (continued)

b. Use **Table 2-7** to mail the worksheets, forms, and suspect beetles.

A list of PPQ identifiers and their areas of responsibilities are in Appendix 18 of PPQ's Airport and Maritime Operations Manual.

Table 2-7: Where to Mail Worksheets, Forms, and Suspect Beetles

If you are located in the Region of:	Then mail to:
Northeast	The nearest PPQ identifier. A list of PPQ identifiers and their areas of responsibilities are in Appendix 18 of PPQ's Airport and Maritime Operations Manual.
Southeast	The nearest PPQ identifier. A list of PPQ identifiers and their areas of responsibilities are in Appendix 18 of PPQ's Airport and Maritime Operations Manual.
Central	USE **overnight** mail to send the specimen to: Eric McDonald Identifier USDA, APHIS, PPQ Plant Inspection Station 3004 Mecom Road Houston, TX 77032
Western	The nearest PPQ identifier. A list of PPQ identifiers and their areas of responsibilities are in Appendix 18 of PPQ's Airport and Maritime Operations Manual.

Step 5 (continued)

2. Distribute copies of the Pine Shoot Beetle Survey Field Data Worksheet, if applicable.

a. For positive inspection results, send a copy with the suspect beetles and a completed PPQ Form 391 to the Regional or port identifier.

b. Send a copy to the PPQ port director or SPHD. For positive inspection results, the port director or SPHD will send a copy to the SPRO.

c. Send a copy to your supervisor.

d. Retain a copy for you, the surveyor.

Step 6: Take Action on Results of the Inspection:

Following is a summary of the actions taken as the suspect beetles are identified.

1. The PPQ identifier will identify the suspect beetle (see **Table 2-8**).

NOTE: If the identifier does not have discard authority for the pine shoot beetle, then they will send the specimen and PPQ Form 391 for confirmation to:

Charles F. Brodel, Coleoptera Specialist,
USDA, APHIS, PPQ
Plant Inspection Station
3500 N.W. 62 Avenue
P.O. Box 59-2136
Miami, FL 33159
Telephone: 305-526-2825

Step 6 (continued)

Table 2-8: Action to Take Based on the Identifier's Findings

If the identifier:	And the origin is in a:	Then:
Positively identifies the suspect beetle as the pine shoot beetle (*Tomicus piniperda*)	Non-quarantined county	• NOTIFY immediately the appropriate PPQ port director or SPHD. • SEND a copy by FAX of PPQ Form 391 to the PPQ port director or SPHD.
	Quarantined county	SEND a copy through normal channels of PPQ Form 391 to the PPQ port director or SPHD.
Determines that the suspect beetle is **not** the pine shoot beetle	→	

2. The PPQ port director or SPHD will notify the following personnel either directly or through the Region by telephone, FAX, or electronic mail.

a. The Program Coordinator, Christine Markham

b. The survey personnel through their supervisors (information to be entered into NAPIS)

SURVEY
Conduct Trapping Surveys

Overview:

The steps in ***Figure 2-3*** are an overview of the procedures for conducting trapping surveys to support the detection and delimiting survey aspects of the pine shoot beetle program.

Step 1: Prepare to Conduct Trapping Surveys
Step 2: Contact the Property Owner
Step 3: Set Up and Place Traps
Step 4: Mail Survey Worksheet
Step 5: Set a Schedule for Servicing Traps
Step 6: Service Traps
Step 7: Mail Survey Worksheets, Forms, and Suspect Beetles
Step 8: Remove Traps

Figure 2-3: Overview of conducting trapping surveys

Step 1: Prepare to Conduct Trapping Surveys:

After receiving information about the survey area from your supervisor, prepare to conduct trapping surveys.

1. Using a State or county map, identify sites within the survey area where there will most likely be at least 25 specimens of host material (pine trees). Refer to the examples listed below.

    a. Christmas tree farms and plantations
    b. Nurseries
    c. Ornamental or commercial plantings of pine trees
    d. Saw mills, pulp mills

(continued on next page)

Step 1 (continued)

e. Gathering yards, lumber yards (central locations where timber operations gather material before distribution)
f. Areas of abundant pine trees that are 12-20 feet high and are poorly managed
g. Areas that have been cleared for development or farming (especially if piles of pine trees have been sitting around since previous spring/summer)
h. Reforestation plantings, wildlife plantings, roadside planting
I. Wind breaks and shelter belts
j. Privately grown stands of pine trees (not where FS personnel will be surveying)

Make local contacts and identify local sources to help find survey sites. For example, SPRO, Department of Natural Resources, Forest Service, county agent, Cooperative Extension Service specialist, State highway department, and owners of Christmas tree farms and plantations, nurseries, saw and pulp mills. Use **Table 2-9** to locate the number of sites for trapping surveys.

Table 2-9: Locate the Sites for Trapping Surveys

If you are conducting trapping surveys for:	Then:
Detection	LOCATE a minimum of 10 sites within a designated high-risk county. The 10 sites should be widely scattered around the county
Delimiting	BEGIN at a designated grid point and LOCATE the nearest site of at least 25 pine trees

Step 1 (continued)

2. Map out a route to the survey sites.

3. Determine the time needed to conduct the trapping surveys. All traps are to be in place before the first captures of beetles are expected, which depends on temperature. The pine shoot beetle will begin flying when daytime temperatures exceed 12°C (53.6°F) for at least two consecutive days. Once in place, the Lindgren® and Theysohn® traps should be serviced on a maximum 2-week schedule until approximately June 1.

The best time to check log traps is during the 2-4 weeks after beetles begin to fly. After this time, the logs will be attacked by additional domestic species, making it necessary to sort and screen finds.

4. Check the contents of the survey kit to make sure you have the items necessary to conduct trapping surveys. (A detailed list of items is under the Survey section of this manual titled Prepare to Conduct Surveys.)

(continued on the next page)

Step 1 (continued)

Also, include a State or county map with the sites identified and a route clearly marked. Necessary items include:

_____ Lists of local contacts and sources
_____ Supply of pest alert pamphlets
_____ Ballpoint pens, pencils, permanent markers
_____ Knife and gloves
_____ Traps, containers of lure, and a supply of replacement parts. **NOTES**: Lure should be stored as cold as possible in a refrigerator or freezer until traps are placed in the field. Lure is stored in plastic bottles or bubble pacs and **should not be opened**. The chemicals are released through the container walls.
_____ Vapona strips or soapy water for killing beetles trapped in the collection trays. Note that when soapy water is used, the traps need to be checked more frequently.
_____ String, wire, rebars, and/or wooden stakes
_____ Identification and number labels for traps
_____ Forceps, sorting pan, and strainer
_____ Vinyl or latex disposable gloves
_____ Detergent and water solution in 2 liter bottle
_____ Vials or jars with alcohol, vial labels
_____ Mailers, boxes, mail labels
_____ Supply of Pine Shoot Beetle Survey Field Data Worksheets
_____ Supply of PPQ Form 391, Specimens of Determination
_____ Pine Shoot Beetle Program Manual
_____ GPS receiver (optional)

5. Assemble the traps, if necessary. Refer to Appendix 12 for a description and illustrations of the traps. Assign consecutive numbers for the traps within each survey area.

Step 1 (continued)

For Log Traps: Use one species of the following pines that have rough bark: Jack pine, red pine, Scotch pine, or Austrian pine. Cut logs as soon as practical before using, but no later than 3 months before placing traps. The logs should be cut from relatively healthy, young trees that have lower trunks with a preferred diameter greater than 3 inches. (Smaller logs dry out too quickly making them unsuitable as bait logs for pine shoot beetle.) The trees must come from an area where the survey is being conducted, or from an area that has been demonstrated (10 negative survey sites) to be free from pine shoot beetle. Cut logs 2 feet long from the rough-bark section on the lower trunk. When the logs are harvested outside a county being surveyed, avoid using the bottom 12 inches of the tree trucks, to ensure that no overwintering beetles are captured in the cut logs. (See Appendix 12 for a detailed description.)

Step 2: Contact the Property Owner:

Once you get to a selected site, contact the property owner or a representative of the property where you want to conduct a trapping survey to obtain their permission.

1. Give the owner or a representative the following information:

    a. Who--Identify yourself (give a business card, if available).

    b. What--Place a trap among pine trees. Ask the owner or a representative what kind of pine trees are on the property and the quantity of pine trees. Use Appendix 2 to help with identifying host material. Also, remember that you want to place a trap where there is a minimum of 25 pine trees.

Step 2 (continued)

c. Where--Show or explain the location of the pine trees, or ask the owner or a representative where on the property pine trees are located.

d. When--Explain the survey schedule. You will return to service the trap at a maximum of every 2 weeks. Then, you will remove the trap on approximately June 1.

e. Why--Give the pest alert pamphlet which explains the importance of the Pine Shoot Beetle Regulation and the basis for conducting a nationwide survey to detect and delimit the pine shoot beetle.

2. Record initial information on a Pine Shoot Beetle Survey Field Data Worksheet. The remainder of the worksheet will be completed while you conduct the survey. See an example in Appendix 5.

a. Block 1--Check the box for the type of trap and the box for either detection or delimiting survey. Write in for log traps.

b. Blocks 2-4--Fill in.

c. Block 5--Enter the street address of the property.

d. Block 6--Enter the street address of the owner if it is different from the address of the property.

e. Block 7--Enter the type of property, for example, a nursery, tree farm, Christmas tree farm, residence.

Step 2 (continued)

f. Block 8--Enter the name of the property owner and the telephone number.

g. Blocks 9 and 10--Leave blank.

h. Block 11--If you can identify a section number where the property falls within using the map, then enter the section number. Otherwise, leave Block 11 blank and let the PPQ port director or SPHD record the section number on their copy.

I. Block 12--If you are using a GPS receiver or if you can identify the latitudinal and longitudinal coordinates of the survey site using the map, then enter those coordinates. Otherwise, leave Block 12 blank and let the PPQ port director or SPHD record the coordinates on their copy.

j. Block 13--Enter the years the property owner has had the property, and the acres which are used for the type of activity entered in Block 7 (nursery, Christmas trees, residence).

k. Block 14--Leave blank.

l. Block 15--Enter the kind of pine trees where you will be placing a trap.

m.Block 16--Leave blank.

n. Blocks 17-22, 24--Leave blank; later you will fill in some of these blocks.

Step 2 (continued)

o. Block 23--Draw a map of the property including nearby roads or landmarks.

Step 3--Set Up and Place the Traps:

1. If not done previously, assemble the traps. See Appendix 12 for a description and illustrations of the traps.

2. Place containers of lure and two vapona strips in the traps. For the Lindgren® and Theysohn® traps, the lure is in two 16 ml bottles of alpha-pinene.

a. **SAFETY PRECAUTION:** When placing the containers of lure in traps, it is very important that each container is handled with vinyl or latex gloves to avoid contamination and exposure of chemicals. After placing lure and vapona strips in a trap, remove your gloves before handling the traps to avoid contamination. Dispose of gloves after each use; but, not on the ground near traps, because this will attract beetles away from traps!

b. **For Lindgren® Traps:** Hang the containers of lure using the manufacturer's holders (black pieces of rubber with white plastic circles on each end). Follow the instructions on Phero-Tech's Product Information Sheet on Pine Shoot Beetle Lure For Lindgren Funnel Traps. Place a vapona strip in the bottom collection unit (white bucket).

Step 3 (continued)

c. **For Theysohn® Traps:** Hang the containers of lure through the top of a trap and down to the center using wire or string (see ***Figure 2-4***). At the top of a trap there are two flaps that cover a cut-out area, which are large enough to push lures through. The two flaps have a hole in them to attach wire or string.

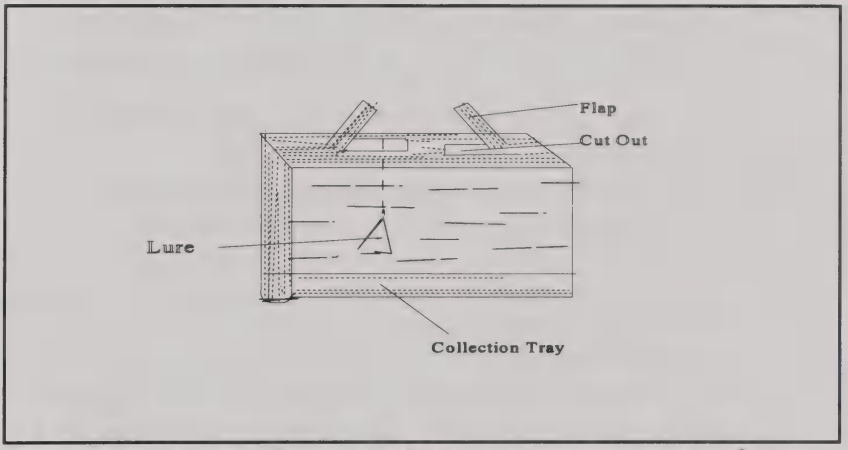

Figure 2-4: Example of how the lure hangs in Theysohn® traps

(1) Cut a piece of wire or string for each container of lure long enough to allow for tying at each end and for the containers to hang down to the center of a trap.

(2) Tie a piece of wire or string to each container of lure.

(3) Lower the containers into a trap through existing cut-out areas at the top, down to the center.

Step 3 (continued)

(4) Tie the other ends of the wires or strings to existing flaps at the top of a trap. More holes can be easily made in the flaps by using any pointed object.

(5) Place a vapona strip or soapy water in the collection tray (the black, narrow tray at the bottom of a trap).

3. Complete identification and numbering labels for the trap. Use a numbering scheme set up by your office or work unit.

4. Place the trap within a stand of pine trees. **NOTES:** Avoid placing traps where there is a lot of freshly cut pine because it will compete with the traps. Also, avoid placing traps at windy sites where they can be knocked over.

a. **For Lindgren® Traps:** Suspend the trap by a rebar (5-7 ft. long with the top bent at a 90° angle). It may be helpful to support the middle of the funnel trap with a wire or rope to minimize swaying in the wind. Suspend trap about 2 inches above the ground. (See ***Figure 15-1***.)

b. **For Log Traps:** There are various ways to arrange the bait log or logs at a trap site: three logs stacked in a tepee-like or cabin-like arrangement; log or logs stacked around or against a tree; log or logs vertically leaning against a fence or other object; a single log placed horizontally above the ground. Note that the bait log or logs need to be set-up off the ground a few inches in some manner. (Refer to Appendix 12 for a description of the various ways to arrange the bait log or logs, ***Figure 15-3***, or follow locally established protocol.)

Step 3 (continued)

Depending on the characteristics of the site, place logs in full sun, partial shade, or full shade. It is advantageous to place logs in partially shaded locations because beetles may avoid logs that have high bark temperatures when exposed to the sun. But, in areas where there is heavy snowfall, it may be best to place the logs where the sun would help melt off the snow.

NOTE: When surveying for pine shoot beetle, **do not** use a vial of alcohol as an added attractant. As the bait log ages it produces alcohol. A large concentration of alcohol acts as an inhibitor.

c. **For Theysohn® Traps:** Suspend the trap using two wooden stakes or rebar bent in a U-shape. Suspend trap about 2 inches above the ground. (See ***Figure 15-2***.)

5. Once a trap is in place, complete a Pine Shoot Beetle Field Data Survey Worksheet and plot the location of the trap on the map.

a. Block 17--Check the condition of the pine trees where you placed the trap, and enter their stand age and height.

b. Blocks 18 and 19--Leave blank.

c. Blocks 20 and 21--Print your name, agency, telephone number, and date when the trap was set and placed.

Step 3 (continued)

d. Block 22--On the first row, enter the date when the trap was set and its condition.

e. Block 24--Enter any remarks that may help future survey activities.

f. Plot the location of the trap on the map.

6. Go to the next site until all traps in the survey area are placed (return to Step 2).

Step 4: Mail Survey Worksheets:

At the end of each survey day, distribute the copies of the Pine Shoot Beetle Survey Field Data Worksheet.

1. Send a copy to the PPQ port director or SPHD.

2. Keep the remaining copies intact, and use the survey worksheet to record the results of servicing the trap in Block 22.

Step 5: Set a Schedule for Servicing Traps:

After all your traps are in place, set up a schedule for servicing the traps in a minimum of 2-week intervals.

The Lindgren® and Theysohn® traps are to be serviced at a minimum of every 2 weeks until approximately June 1. Note that servicing should be set at shorter internals if soapy water is used instead of vapona strips in the collection trays of the traps.

Step 5 (continued)

For log traps, when the temperature begins to rise, check the traps every 10 days for approximately 4 weeks. Because the pine shoot beetle begins flying before native bark beetles, it is important to check log traps early. Also, it may be advantageous to set up a bait log within an infested county to serve as a monitor when beetles begin flying. Monitor the log for beetle activity; then begin checking log traps in noninfested counties.

Step 6: Service Traps:

1. Plan your route before leaving the office to eliminate overlapping travel. Have a State or county map with the traps plotted and a route clearly marked.

2. Gather all the items you will need to service traps and visually inspect bait logs. (A detailed list of items is in the Introduction to the Survey section of this manual.) Necessary items include:

_____ Trap replacement parts, tools such as screwdriver and hammer
_____ Screwdriver or stiff-bladed putty knife for inspecting log traps
_____ A piece of plastic for laying under log traps while inspecting
_____ Originally completed Pine Shoot Beetle Survey Field Data Worksheet
_____ Sorting pan, strainer, detergent solution, forceps
_____ PPQ Form 391
_____ Vials or jars with alcohol, vial labels
_____ Boxes, mail labels
_____ Pine Shoot Beetle Program Manual

Step 6 (continued)

3. Service the traps. (Go to substep 4 for inspecting log traps, beginning on page 2.44.)

a. Enter the date you are servicing the trap in Block 22 of the Pine Shoot Beetle Survey Field Data Worksheet.

b. Look at the overall condition of the trap. Replace badly damaged or missing traps. Enter the condition of the trap in Block 22 of the survey worksheet.

WARNING: When servicing the Theysohn® trap, look for wasps and spider webs inside the trap. Clean out webbing and insects. Take the appropriate safety precautions to prevent getting stung or bitten.

c. Look for suspect beetles in the collection container (tray or bottle) of the trap.

(1) Carefully slide or unscrew collection container from the body of the trap.

(2) Use screwdriver or other tool to pry funnel lid from tray, if necessary.

(3) Remove vapona strip and set aside for later reuse. Use **Table 2-10** for the action to take when you find suspect beetles.

Step 6 (continued)

Table 2-10: Action To Take When You Find Suspect Beetles

If you:	Then:
Find beetles present	CONTINUE on to substep 3.d.
Do not find beetles present	1. CLEAN out any foreign debris in the collection container. 2. SET vapona strip in collection container; REATTACH collection container to the trap. 2. RETURN to the trap in 2 weeks.

d. Set out the sorting pan and pour the detergent and water solution into it. **NOTE:** For traps being used to survey for exotic bark beetles, follow local directions or those provided in the Cooperative Agricultural Pest Survey (CAPS) guidelines, if applicable.

e. Empty the contents of the collection container from the trap into the sorting pan. Set vapona strip back in the collection container and reattach the collection container to the trap.

Step 6 (continued)

f. Rough sort the collection to remove large beetles and specimens which are not beetles. Throw away anything larger than the illustration in ***Figure 2-5*** unless instructed otherwise by your region. **NOTE:** For traps being used to survey for exotic bark beetles, follow local directions, if available.

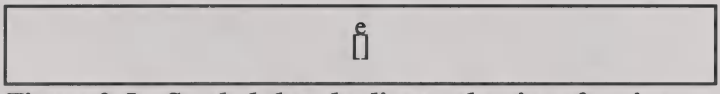

Figure 2-5: Symbol that duplicates the size of a pine shoot beetle

g. Place the remaining suspect beetles in a vial or jar with alcohol.

h. Fill out a vial label in **pencil**, and place the label in the vial with the suspect beetles. Include on the label the following information:

- Date of servicing
- Your name
- Kind of pine trees around the trap(s)
- Collection number from a PPQ Form 391 (to be filled out)

CAUTION: Always use a pencil to fill out vial labels. Ink from pens and markers bleeds and dissolves when in contact with water or alcohol.

i. Complete a PPQ Form 391, Specimens for Determination.

Step 6 (continued)

j. Enter the collection number on the PPQ Form 391 on the survey worksheet in Block 22, along with the number of adult beetles collected and the number shipped.

k. Go to substep 5 on page 2.45.

4. Inspect log traps.

a. Visually check for reddish-white boring dust between the bark scales or on the ground, and for entrance holes. In making breeding galleries, pine shoot beetles push frass and boring dust out through the entrance hole. This boring dust can be traced to the entrance hole, which is not always readily visible (see **Table 2-11**).

Table 2-11: Check for Entrance Holes or Boring Dust

If you find:	Then:
Entrance holes or boring dust	• Physically EXAMINE the bait log. • CONTINUE on to substep 4.b.
No evidence of entrance holes or boring dust	GO to the next site until all traps in the survey area are serviced or inspected

b. Spread a piece of plastic on a flat surface near or under the log. If desired, wear disposable gloves when removing the bark to avoid contact with the pitch.

Step 6 (continued)

c. Lay the log on the plastic and carefully remove the rough bark near the place where the boring dust has accumulated using a pocket knife, screwdriver, or putty knife. Start 3-4 inches above the entry hole or dust accumulation and shave off the bark towards the dust accumulation to expose the underlying wood.

d. Look for a gallery (see **Table 2-12**). The galleries made by the pine shoot beetle are clean, open, and free of frass. They are very regular with a vertical, central passageway and short lateral passageways that are nearly perpendicular to the central passageway. Consult the literature for pictures to compare galleries made by pine shoot beetles compared to those made by other bark beetles (see ***Figure 2-6*** and ***Figure 2-7***).

Table 2-12: Look for a Gallery

If you find:	Then:
A gallery	• CONTINUE shaving off the bark to expose the entire gallery, or until a beetle is found • CONTINUE on to substep 4.e.
No evidence of a gallery	START 3-4 inches below where the boring dust has accumulated, and SHAVE OFF the bark toward the accumulation

Step 6 (continued)

e. Place the suspect beetle in a vial or jar with alcohol. Fill out a vial label in **pencil** (for information on the vial label, see substep 3.h. on page 2.42). Complete a PPQ Form 391. Enter information on the survey worksheet in Block 22.

5. Go to the next site until all traps in the survey area are serviced (return to substep 3 for servicing Lindgren® and Theysohn® traps beginning on page 2.40 or substep 4 for inspecting log traps beginning on page 2.43).

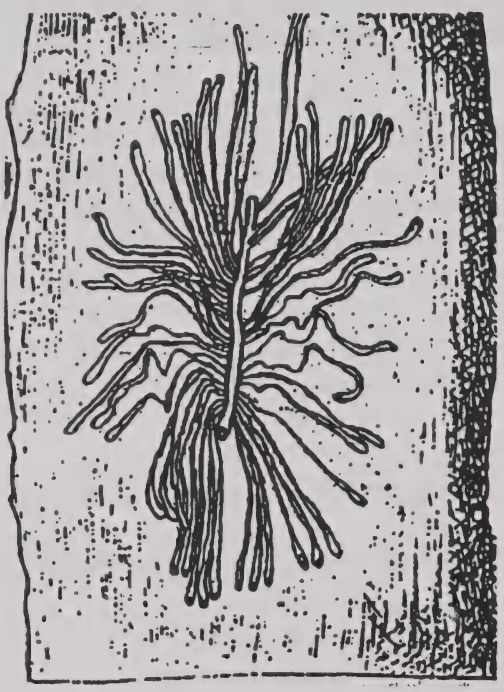

Figure 2-6: Typical bark beetle gallery of Tomicus piniperda showing a vertical egg gallery constructed by a pair of adult beetles along with radiating larval galleries (USDA Coop. Econ. Ins. Rpt., 1972).

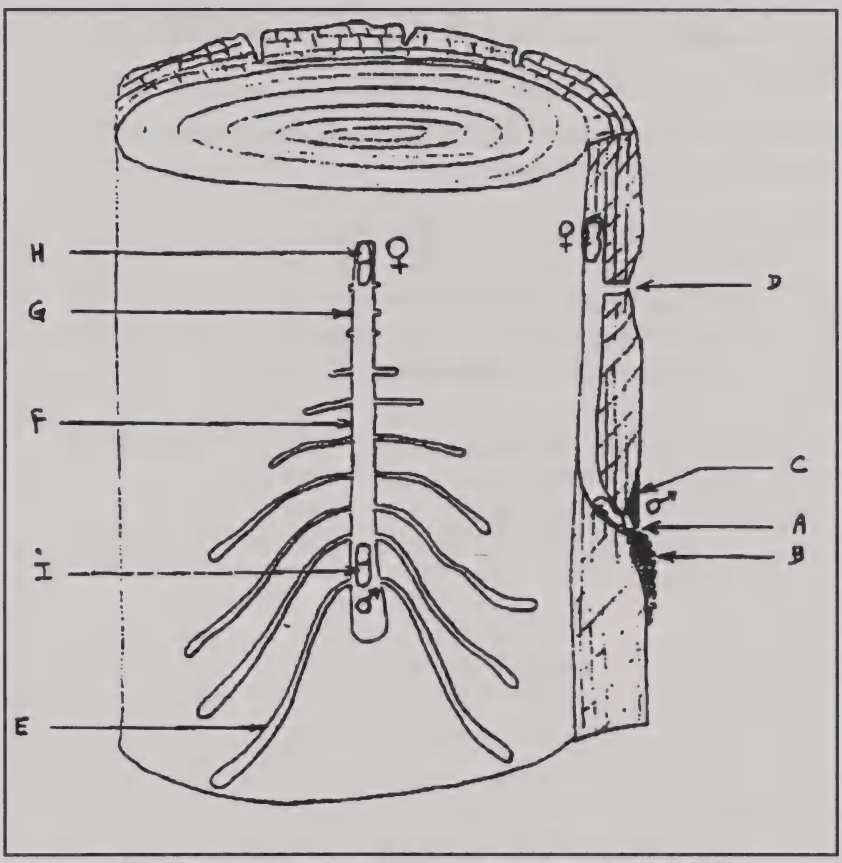

Figure 2-7: Tomicus piniperda gallery pattern under bark

A=Entrance hole
B=Saw dust
C=Lump of resin
D=Aeration hole
E=Larval gallery
F=Maternal gallery
G=Egg notch
H=Female boring the egg laying gallery
I=Male cleaning the maternal gallery

Step 7: Mail Survey Worksheets, Forms, and Suspect Beetles:

At the end of each survey day, mail all documented and collected results of your trapping surveys.

1. Only for positive inspection results:

   a. Pack a box with the following items. You can put more than one vial in a box as long as the accompanying documents are also included in the box.

      (1) PPQ Form 391, Specimens for Determination
      (2) Vial with suspect beetles and label

   b. Mail the box by following the directions in **Table 2-13.**

Step 7 (continued)

Table 2-13: Where to Mail Worksheets, Forms, and Suspect Beetles

If you are located in the Region of:	Then mail to :
Northeast	The nearest PPQ identifier. A list of PPQ identifiers and their areas of responsibilities are in Appendix 18 of PPQ's Airport and Maritime Operations Manual.
Southeast	The nearest PPQ identifier. A list of PPQ identifiers and their areas of responsibilities are in Appendix 18 of PPQ's Airport and Maritime Operations Manual.
Central	Use **overnight** mail to send the specimen to: Eric McDonald USDA, APHIS, PPQ Plant Inspection Station 3004 Mecom Road Houston, TX 77032
Western	The nearest PPQ identifier. A list of PPQ identifiers and their areas of responsibilities are in Appendix 18 of PPQ's Airport and Maritime Operations Manual.

Step 8: Remove Traps:

At the end of the survey period, remove all placed traps. Look for missing traps. Examine those found for the pine shoot beetle.

1. Remove traps from sites.

   a. Look for the trap number. Rewrite the number if it has faded. This will help you identify the traps later, if necessary.

   b. Record the date the trap was removed in Block 22 of the survey worksheet.

   c. Place the traps in a bag.

   d. Remove all the items used to set it (string, wire, rebars, and wooden stakes).

2. Check the traps for suspect beetles. Make a final check for suspect beetles in all the collected traps. If you find suspect beetles, follow the steps for submitting them.

3. Store traps, if applicable. Dispose of all bait logs as if they were infested--debark completely, then burn, chip, or fumigate the bark.

4. Distribute copies of the survey worksheets.

   a. Send a copy to the PPQ port director or SPHD. For positive inspection results, the port director or SPHD will send a copy to the SPRO.

   b. Send a copy to your supervisor.

   c. Retain a copy for you, the surveyor.

SURVEY
Report Survey Results

The National Agricultural Pest Information System (NAPIS) is the official mechanism to store, manage, and retrieve summarized data from the pine shoot beetle survey for multistate, regional and national use. NAPIS is used for maintaining a historical record and for summarizing the results of the trapping and visual survey seasons. The raw survey data should be managed within the State and may include dates and locations of individual survey activities as well as the species of host trees present on survey sites.

Each State should complete at least one NAPIS data input worksheet for each survey type (trapping or visual for detection or delimiting) in each county (see ***Figure 9-1*** in Appendix 6 on page 9.8). Enter this record(s) after all survey results have been counted, but no later than December 1 each year. The summary results should include the number of negative as well as positive observations. Note: Enter a positive record **immediately** for confirmations representing **new** State or county records.

The PPQ port director or SPHD in each State must ensure that the data are entered into NAPIS by the State survey coordinator (SSC) or some other authorized party. The port director or SPHD is responsible for monitoring the data accuracy. Therefore, after the survey data are entered, the port director or SPHD reviews the data and compares the summarized data to the survey records. The port director or SPHD immediately corrects any error.

A data entry worksheet is in Appendix 6 and can be reproduced for field use by data entry persons. The worksheet is also present on the CAPS WEB site as part of the Pine Shoot Beetle home page. This site is apt to have a more updated version than that in this manual. The worksheet is designed to provide all of the

information needed in the correct format. Appendix B of the NAPIS User Guide explains the one-line data entry input format of the NAPIS data base. SSC's or other authorized parties can use these guidelines to complete the data entry of the survey results.

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REGULATORY
Introduction

Purpose:

Facilitate the movement of regulated articles from and through quarantined areas to contain the spread of the pine shoot beetle. A list of quarantined areas is in Appendix 7. Regulated articles are as follows:

- Cut, Christmas trees of pine (*Pinus* spp.)
- Wreaths and garland of pine (*Pinus* spp.) and raw materials for pine wreaths and garland
- Logs and lumber with bark attached and tree stumps of pine (*Pinus* spp.)
- Nursery stock of pine (*Pinus* spp.)
- Bark nuggets including bark chips of pine (*Pinus* spp.)

Regulatory procedures for the first four categories of regulated articles are detailed in the following reference sections.

Pine wreaths and garland and the raw materials for pine wreaths and garland originate as pine trees. Therefore, to facilitate the interstate movement of pine trees being cut to make wreaths and garland; use the manual's reference section--Christmas Trees of Pine (*Pinus* spp.) beginning behind the tab titled Christmas Trees.

Pine bark nuggets may be treated with an approved method of fumigation; or handled, processed, or utilized in a way that will not result in the spread of the pine shoot beetle. Refer to Step 5 beginning on page 3.19 when taking action on shipments of pine bark nuggets originating in quarantined areas.

Additionally, the regulated articles must be eligible for interstate movement under all other applicable Federal, domestic plant quarantines and regulations.

Compliance Management Program:

In August 1996 APHIS finalized the Compliance Management Program for Christmas trees and nursery stock. This program applies integrated pest management to commercial production, resulting in a significant decrease in populations of the pine shoot beetle at growing sites. Such a program is the preferred option for those producers shipping pine Christmas trees and nursery stock outside of the quarantined area. Successful completion of all program components allows for unrestricted movement of regulated articles. For more information about the Compliance Management Program, refer to Appendix 13.

Items Needed:

The following listed items are needed to conduct inspections of regulated articles.

- State and County maps
- Disposal order stamp (optional for cut, pine Christmas trees)
- Gloves
- Knife
- Magnifying lens (optional)
- Supply of Certificates (PPQ Form 540)
- Supply of Compliance Agreements (PPQ Form 519)
- Supply of Limited Permits (PPQ Form 530)
- Supply of plastic bags
- Ball point pen
- Supplies related to supervising treatments of logs and lumber

Safety:

- Take all precautions identified in the Treatment Manual related to supervising methyl bromide fumigations.
- Growers/shippers are responsible for standing up cut Christmas trees as they are inspected and for unwrapping Christmas trees that have been wrapped or baled prior to inspection.
- Wear proper attire (i.e., rubber pants, boots) when inspecting Christmas trees in inclement weather.

REGULATORY
Reference Section--Christmas Trees of Pine (*Pinus* spp.)

Overview:

The steps in ***Figure 3-1*** are an overview of the regulatory procedures used to facilitate the interstate movement of cut, pine Christmas trees originating in quarantined areas. A list of quarantined areas is in Appendix 7. Also use these procedures for facilitating the interstate movement of pine trees being cut to make wreaths and garland.

For growers/shippers participating in the compliance management program, go to Appendix 13.

Step 1: Obtain Information From the Grower/Shipper
Step 2: Schedule an Inspection
Step 3: Select the Number of Pine Trees to Inspect
Step 4: Inspect the Pine Trees
Step 5: Take Action on Pine Christmas Trees

Figure 3-1: Overview of facilitating the interstate movement of pine Christmas trees

During October, November, and December cut, pine Christmas trees originating **outside** any quarantined area can move through quarantined areas without a Certificate or Limited Permit under the following conditions--the point of origin must be indicated on the waybill, invoice, or other shipping document that accompanies the shipment; also, the shipment must move through quarantined areas without stopping except for drop-off loads, refueling, or traffic conditions such as traffic lights or stop signs.

Step 1: Obtain Information From the Grower/Shipper:

Obtain the following information from a grower/shipper upon their request for a Limited Permit for a shipment or a Compliance Agreement for a premises inspection:

1. Location of the premises or the cut trees.

2. Destination for shipments of cut trees.

3. Characteristics of the trees.

    a. What kind of trees are going to be shipped?

NOTE: Only Christmas trees, wreaths, and garland of pine (*Pinus* spp.) are regulated. The most popular kind of pine trees used as Christmas trees, wreaths, and garland are Austrian pine, white pine, Scotch pine, and Virginia pine.

    b. Are the trees painted (color-enhanced) or unpainted (natural)?

4. Number of trees on the premises or in the shipment.

Step 2: Schedule an Inspection:

Schedule an inspection of the trees keeping in mind the following considerations:

1. The grower/shipper must notify the PPQ officer or State cooperator at least 48 hours in advance of the movement.

2. If the Christmas trees have been cut, require the grower/shipper to provide a person during inspection to stand the trees up as they are selected for inspection.

Step 3: Select the Number of Pine Trees to Inspect:

Using **Table 3-1 and Table 3-2**, select the number of pine trees that will be inspected randomly using the total number of pine trees on the premises or in the shipment, and whether the trees are painted (color enhanced) or unpainted (natural).

NOTE: If a shipment of trees is a mixture of painted and unpainted ones, use **Table 3-1** for painted trees to determine the number of trees to inspect.

Table 3-1: Number of Painted (Color Enhanced), Pine Christmas Trees to Inspect

If the total number of **painted**, pine Christmas trees is:	Then randomly select the following number of trees for inspection:
1-72	All
73-100	73
101-200	96
201-300	106
301-400	111
401-500	115
501-600	117
601-700	119
701-800	120
801-900	121
901-1,000	122
1.001-2,000	126
2,001-3,000	127
3,001-5,000	128
5,001-10,000	129
10,001 or more	130

Step 3 (continued)

Table 3-2: Number of Unpainted (Natural), Pine Christmas Trees to Inspect

If the total number of **unpainted**, pine Christmas trees is:	Then randomly select the following number of trees for inspection:
1-57	All
58-100	58
101-200	69
201-300	75
301-400	77
401-500	79
501-600	80
601-700	81
701-1,000	82
1,001-3,000	84
3,001-10,000	85
10,001 or more	86

Step 4: Inspect the Pine Trees:

Inspect the pine trees for evidence of infestation by the pine shoot beetle. Refer to Appendix 3 on how to inspect pine trees for the pine shoot beetle. A summary of the inspection techniques is below.

1. Randomly select each pine tree as you conduct the inspection.

Step 4 (continued)

NOTE: If the trees have been wrapped/baled, require the grower/shipper to unwrap the selected trees as you inspect them.

NOTE: If the trees have been cut, require the grower/shipper to stand up the selected trees as you inspect them.

HINT: If the shipment is a mixture of pine trees (Scotch, white) then focus your inspection on Scotch pine which is the preferred host of the pine shoot beetle.

HINT: If the shipment is a mixture of tall and short trees, choose a majority of tall trees to inspect.

2. While concentrating on the upper part of the tree, look all around it for symptoms and evidence of pest infestation.

   a. Discolored shoots, needles, or tips of shoots
   b. Entrance holes in the sides of shoots and cream colored pitch tubes
   c. Drooping or broken shoots attached or fallen
   d. Shoots which pop off the tree when briskly brushed

3. If you see a symptom of pest infestation, dissect the shoot to verify the evidence. Evidence would include presence of a clean gallery (empty (open) and does not contain frass) and/or presence of the pine shoot beetle.

   a. Cut off the branch with the damaged shoot.
   b. Rotate the shoot, looking for entrance holes.
   c. Horizontally slice the branch open with a knife.
   d. Look for galleries and the pine shoot beetle.

Step 5: Take Action on Pine Trees:

Take action on inspected, pine trees originating in quarantined areas before moving interstate.

1. Based on the results of your inspection, determine whether to issue a Limited Permit, a Compliance Agreement, or a Certificate; or to reject the shipment (see **Table 3-3** and **Table 3-4**).

Table 3-3: Take Action Based on Inspection of Pine Christmas Trees

If you find:	Then:
Evidence of infestation in any one inspected tree, which is the presence of: • a clean gallery, and/or • the pine shoot beetle	• NOTIFY the grower/shipper of the inspection results • PROVIDE the following options: --Reject the shipment (they can sell infested trees within the quarantined area) --Treat the shipment with a methyl bromide fumigation (see **Table 3-5** on page 3.12) • GO to substep 2
No evidence of infestation by the pine shoot beetle in any inspected tree	• ISSUE a Limited Permit (PPQ Form 530) or a Compliance Agreement (PPQ Form 519). GO to Appendix 8 on how to complete Limited Permits or Appendix 9 on how to issue and monitor Compliance Agreements. • MONITOR holders of Compliance Agreements on an "as needed" basis by PPQ port director or by the State cooperator in the State of origin.

Step 5 (continued)

2. Take final action when you find evidence of infestation (from substep 1) (see **Table 3-4**).

Table 3-4: Take Final Action When You Find Evidence of Infestation on Pine Christmas Trees

If the grower/shipper chooses:	Then:
To treat the shipment using one of the fumigation treatments listed in **Table 3-5***	• SUPERVISE the fumigation **NOTE:** Christmas trees should be cut at least 14 days before treatment to reduce the possibility of phytotoxic effects. **NOTE:** APHIS assumes no responsibility for damage to trees caused by possible phytotoxic effects of these treatments. • ISSUE a Certificate (PPQ Form 540) attesting that the Christmas trees have been treated in accordance with 7CFR 301.50-10(c).
Not to treat the shipment	• REJECT the shipment. DO NOT ISSUE a Limited Permit or a Compliance Agreement. • COLLECT evidence (optional). • REPORT rejection to your supervisor.

*Methyl bromide at normal atmospheric pressure

Step 5 (continued)

NOTE FOR STATES OF DESTINATION: If a Limited Permit (PPQ Form 530) was issued in the State of origin, monitor the disposal requirements by ensuring that the responsible party disposes of the unsold Christmas trees, wreaths, and garland by one of the following methods:

- burning
- chipping
- fumigating with methyl bromide at normal atmospheric pressure as listed in **Table 3-5**

Table 3-5: Fumigation Treatments for Pine Christmas Trees

Temperature	Dosage Rate (lb/1000 ft^3)	Exposure Period	Minimum Concentration Readings (ounces) At:			
			2 hrs	3 hrs	3.5 hrs	4 hrs
40-49°F	4 lbs	4 hrs	57	--	--	48
50-59°F	4 lbs	3.5 hrs	57	--	48	--
50-59°F	3.5 lbs	4 hrs	50	--	--	42
60°F or above	4 lbs	3 hrs	57	48	--	--
60°F or above	3 lbs	4 hrs	43	--	--	36

REGULATORY
Reference Section--Logs and Lumber With Bark and Tree Stumps of Pine (*Pinus* spp.)

Overview:

The steps in ***Figure 3-2*** are an overview of the regulatory procedures used to facilitate the interstate movement of logs and lumber with bark and tree stumps of pine (*Pinus* spp.).

NOTE: Presently, there are no effective inspection procedures for detecting the pine shoot beetle in logs and lumber with bark and tree stumps. **Therefore, inspection may not be used as the basis for certifying logs, lumber, or tree stumps.**

Step 1: Determine the Kind of Logs, Lumber, or Stumps Being Shipped
Step 2: Determine if the Pine Logs or Lumber Has Bark Attached
Step 3: Determine the Origin of the Shipment
Step 4: Take Action on Shipments of Pine Logs, Lumber, or Stumps Originating in Non-Quarantined Areas
Step 5: Determine the Final Destination and Movement of Pine Logs, Lumber, or Stumps originating in Quarantined Areas
Step 6: Determine When the Pine Logs, Lumber, or Stumps Were Felled
Step 7: Take Action on Shipments of Pine Logs, Lumber, or Stumps Originating in Quarantined Areas

Figure 3-2: Overview of facilitating the interstate movement of logs and lumber with bark and tree stumps of pine

Step 1: Determine the Kind of Logs, Lumber, or Stumps Being Shipped:

Determine if the kind of logs, lumber, or stumps being shipped is pine (*Pinus* spp.) (see **Table 3-6**).

Table 3-6: Action Based on the Kind of Logs, Lumber, or Stumps Being Shipped

If the logs, lumber, or stumps are:	Then:
Pine (*Pinus* spp.)	• For logs and lumber, GO to Step 2. • For stumps, GO to Step 3.
Of a kind **other than** pine	NO action is required.

Step 2: Determine if the Pine Logs or Lumber Has Bark Attached:

Determine if the pine logs or lumber being shipped has bark attached (see **Table 3-7**).

Table 3-7: Action Based on if the Pine Logs or Lumber Has Bark Attached

If the pine logs or lumber is:	Then:
Without bark (this includes rough cut lumber which has been square-edged (bark removed))	NO action is required.
With bark attached	GO to Step 3.

Step 3: Determine the Origin of the Shipment:

Determine if the shipment of pine logs, lumber, or stumps originates in a quarantined area (see **Table 3-8**). Refer to Appendix 7 for a list of quarantined areas.

Table 3-8: Action Based on the Origin of the Shipment

If the origin is in a:	Then:
Non-quarantined area	GO to Step 4.
Quarantined area	GO to Step 5.

Step 4: Take Action on Shipments of Pine Logs, Lumber, or Stumps Originating in Non-Quarantined Areas:

Take action on shipments of pine logs, lumber, or stumps originating in non-quarantined areas when they are moving through quarantined areas to destinations outside quarantined areas only if the shipment does not comply with the regulation (see **Table 3-9**). Monitor shipments to determine if growers/shippers are following conditions of movement to safeguard the shipments.

Step 4 (continued)

Table 3-9: Take Action on Shipments of Pine Logs, Lumber, or Stumps Originating in Non-Quarantined Areas

If a shipment is moving during:	And the ambient air temperature is:	Then:
February March April May	Above 10°C (50°F)	REQUIRE the following conditions of movement to safeguard the shipment: • SHIP in an enclosed or a completely covered vehicle (plastic, canvas, or other closely woven cloth) to prevent access by the pine shoot beetle. • MOVE through the quarantined areas without stopping except for dropoff loads, refueling, or traffic conditions such as traffic lights or stop signs. • INDICATE the point of origin on the accompanying paperwork.
	At or below 10°C (50°F)	Require the following conditions of movement to safeguard the shipment: • MOVE through the quarantined areas without stopping except for dropoff loads, refueling, or traffic conditions. • INDICATE the point of origin on the accompanying paperwork.
June July August September October November December January	→	

Step 5: Determine the Final Destination and Movement of Pine Logs, Lumber, or Stumps Originating in Quarantined Areas:

Determine the final destination and movement of pine logs, lumber, or stumps originating in quarantined areas (see **Table 3-10**).

Table 3-10: Determine the Final Destination and Movement of Pine Logs, Lumber, or Stumps Originating in Quarantined Areas

If the destination is:	And the shipment is moving through:	Then:
In a quarantined area	Quarantined areas	NO action is required
	Non-quarantined areas	• ISSUE a Limited Permit (PPQ Form 530). GO to Appendix 8 on how to complete Limited Permits. • REQUIRE the following conditions of movement to safeguard the shipment: --Ship in an enclosed vehicle --Move through the non-quarantined areas without stopping except for refueling or traffic conditions such as traffic lights or stop signs --Verify that the destination is within a quarantined area
Outside the quarantined areas	→	GO to Step 6

Step 6: Determine When the Pine Logs, Lumber, or Stumps Were Felled:

Pine logs and lumber with bark attached, and stumps of pine trees which were felled during July through October of the current year present no risk of being infested with the pine shoot beetle (see **Table 3-11**). This period occurs after adult beetles have emerged and before the adult beetles return to overwinter, breed, and their larvae develop. Because these regulated articles will not be infested when felled and shipped from a quarantined area during these months, they present no risk of spreading the pine shoot beetle.

Table 3-11: Determine When the Pine Logs, Lumber, or Stumps Were Felled for Those Originating in Quarantined Areas Moving to Non-Quarantined Areas

If the logs, lumber, or stumps are being shipped during:	And the source pine trees were felled during:	Then:
July 1 through October 31	July 1 through October 31 of the current year	ISSUE a Certificate (PPQ Form 540) attesting that the logs, lumber, or stumps were felled during July through October of the current year and are free from the pine shoot beetle
	November 1 of the previous year through June 30 of the current year	GO to Step 7
November 1 through June 30	→	

Step 7: Take Final Action on Shipments of Pine Logs, Lumber, or Stumps Originating in Quarantined Areas:

Take final action on shipments of pine logs, lumber, or stumps originating in quarantined areas which are destined to non-quarantined areas (see **Table 3-12**).

Table 3-12: Take Final Action on Shipments of Pine Logs, Lumber, or Stumps Originating in Quarantined Areas

If the logs, lumber, or stumps:	Then:
Have been treated at the point of origin under the supervision of PPQ with the approved method of fumigation*	ISSUE a Certificate (PPQ Form 540) attesting that the logs, lumber, or stumps have been treated in accordance with 7CFR 301.50-10. GO to Appendix 10 on how to complete Certificates.
Will be treated at a specified destination under the supervision of PPQ Are moving to a specified destination for specified handling, processing, or utilization which will not result in the spread of the pine shoot beetle (handling, processing, or utilization would include a method to negate fumigation, such as debarking on arrival and the proper disposal of the bark (immediate burning or incineration, or immediate chipping and cooking at an approved pulp mill))**	• ISSUE a Limited Permit (PPQ Form 530) or a Compliance Agreement (PPQ Form 519) for the specified destination which must be preapproved by PPQ and the originating and receiving SPRO to ensure the proper treatment, handling, processing, or utilization of the logs, lumber, or stumps. GO to Appendix 8 on how to complete Limited Permits or Appendix 9 on how to issue and monitor Compliance Agreements. • REQUIRE the following conditions of movement to safeguard the shipment: --Ship in an enclosed vehicle --Move through the non-quarantined areas without stopping except for refueling or traffic conditions such as traffic lights or stop signs. • SUPERVISE the treatment or VERIFY the handling, processing, or utilization to be done at destination.

*, **--See next page

Step 7 (continued)

*Methyl bromide at normal atmospheric pressure with 48 g/m^3 (3 lbs./1,000 ft^3) for 16 hours at 21°C (70°F) or above, OR with 80 g/m^3 (5 lbs./1,000 ft^3) for 16 hours at 4.5-20.5°C (40-69°F)

**Compliance agreements may be issued for an operator at specified destinations once they are approved to handle, process, or utilize the commodity. The port director in the State of origin is to contact the port director in the State of destination prior to movement of the logs, lumber, or stumps to ensure that the specified destination has been approved. See examples of compliance agreements for logs, lumber, and stumps in Appendix 9 beginning on page 12.15.

REGULATORY
Reference Section--Nursery Stock of Pine (*Pinus* spp.)

Overview:

The steps in ***Figure 3-3*** are an overview of the regulatory procedures used to facilitate the interstate movement of pine (*Pinus* spp.) nursery stock. For the purposes of the Pine Shoot Beetle Regulation, nursery stock includes woody plants, shrubs, rooted trees, balled and burlapped Christmas trees, seedlings (including transplants), and greenhouse-grown pines such as bonsai.

For growers/shippers participating in the compliance management program, go to Appendix 13.

Step 1: Determine the Kind of Nursery Stock Being Shipped
Step 2: Determine the Origin of the Shipment
Step 3: Take Action on Shipments of Pine Nursery Stock Originating in Non-Quarantined Areas
Step 4: Determine What Type of Pine Nursery Stock Is Being Shipped
Step 5: Determine the Final Destination and Movement of the Pine Nursery Stock
Step 6: Inspect 100 Percent of the Pine Nursery Stock
Step 7: Issue a Certificate for Inspected Pine Nursery Stock Originating in Quarantined Areas

Figure 3-3: Overview of facilitating the interstate movement of pine nursery stock

Step 1: Determine the Kind of Nursery Stock Being Shipped:

Determine if the shipment of nursery stock is pine (*Pinus* spp.) (see **Table 3-13**).

Table 3-13: Action Based on the Kind of Nursery Stock Being Shipped

If the nursery stock is:	Then:
Pine (*Pinus* spp.)	GO to Step 2.
Of a kind **other than** pine	NO action is required.

Step 2: Determine the Origin of the Shipment:

Determine if the shipment of pine nursery stock originates in a quarantined area (see **Table 3-14**). Refer to Appendix 7 for a list of quarantined areas.

Table 3-14: Action Based on the Origin of the Shipment

If the origin is in a:	Then:
Non-quarantined area	GO to Step 3.
Quarantined area	GO to Step 4.

Step 3: Take Action on Shipments of Pine Nursery Stock Originating in Non-Quarantined Areas:

Take action on shipments of pine nursery stock originating in non-quarantined areas when they are moving through quarantined areas to destinations outside quarantined areas only if the shipment does not comply with the regulation (see **Table 3-15**). Monitor shipments to determine if growers/shippers are following conditions of movement to safeguard the shipment.

Table 3-15: Take Action on Shipments of Pine Nursery Stock Originating in Non-Quarantined Areas

If a shipment is moving during:	And the ambient air temperature is:	Then:
May June July August September October	Above 10°C (50°F)	REQUIRE the following conditions of movement to safeguard the shipment: • SHIP in an enclosed or completely covered vehicle (plastic, canvas, or other closely woven cloth) to prevent access by the pine shoot beetle. • MOVE through the quarantined areas without stopping except for dropoff loads, refueling, or traffic conditions such as traffic lights or stop signs. • INDICATE the point of origin on the accompanying paperwork.
	At or below 10°C (50°F)	REQUIRE the following conditions of movement to safeguard the shipment: • MOVE through the quarantined areas without stopping except for dropoff loads, refueling, or traffic conditions. • INDICATE the point of origin on the accompanying paperwork.
November December January February March April	→	

Step 4: Determine What Type of Pine Nursery Stock Is Being Shipped:

The remaining steps in this section are for any individual to follow when inspecting pine nursery stock. The individual can be a PPQ officer, State cooperator, or person under Compliance Agreement.

Determine what type of pine nursery stock is in the shipment that originates in a quarantined area (see **Table 3-16**).

Table 3-16: Action Based on What Type of Pine Nursery Stock Is Being Shipped That Originates in a Quarantined Area

If the pine nursery stock is:	Then:
Pine seedlings (including transplants) less than 36" tall with a trunk diameter of 1" or less at soil level	ISSUE a Certificate (PPQ Form 540) based on negative results of a general inspection. GO to Appendix 10 on how to complete Certificates.
Greenhouse-grown pine, such as bonsai	ISSUE a Certificate (PPQ Form 540) based on negative results of a general inspection and verification that the greenhouse is screened to prevent entry of the pine shoot beetle. GO to Appendix 10 on how to complete Certificates.
A type **other than** listed above	GO to Step 5.

NOTE: When it is determined that a person will operate under a Compliance Agreement to issue Certificates for the movement of pine nursery stock and greenhouse-grown pines, refer to Appendix 9 on how to issue and monitor Compliance Agreements. PPQ port directors or State cooperators in the State of origin will monitor holders of Compliance Agreements on an "as needed" basis.

Step 5: Determine the Final Destination and Movement of the Pine Nursery Stock:

Determine the final destination and movement of pine nursery stock originating in quarantined areas (see **Table 3-17**).

Table 3-17: Action Based on the Final Destination and Movement of the Pine Nursery Stock Originating in Quarantined Areas

If the destination is:	And the shipment is moving through:	Then:
In a quarantined area	Quarantined areas	NO action is required
	Non-quarantined areas	• ISSUE a Limited Permit (PPQ Form 530). GO to Appendix 8 on how to complete Limited Permits. • REQUIRE the following conditions of movement to safeguard the shipment: --Ship in an enclosed vehicle. --Move through the non-quarantined areas without stopping except for refueling or traffic conditions such as traffic lights or stop signs. --Verify that the destination is within a quarantined area.
Outside the quarantined areas	→	GO to Step 6. **NOTE for Officers and Cooperators:** Schedule an inspection of the nursery stock, keeping in mind the grower/shipper must notify you at least 48 hours in advance of the movement.

Step 6: Inspect 100 Percent of the Pine Nursery Stock:

Inspect the pine nursery stock for evidence of infestation by the pine shoot beetle. Pine nursery stock includes balled and burlapped, container grown or pine seedlings greater than 36 inches tall with a trunk diameter greater than 1 inch.

Refer to Appendix 3 on how to inspect pine trees for the pine shoot beetle. A summary of the inspection techniques is below.

1. Select all the trees for inspection. Inspect 100 percent of the shoots of all the trees in the shipment.

2. Look at all branches for symptoms and evidence of pest infestation.

   a. Discolored shoots, needles, or tips of shoots
   b. Entrance holes in the sides of shoots and cream colored pitch tube
   c. Drooping or broken shoots attached or fallen
   d. Shoots which pop off the tree when briskly brushed

3. If you see a symptom of pest infestation, dissect the shoot to verify the evidence. Evidence would include presence of a clean gallery and/or presence of the pine shoot beetle. Pine shoot beetle galleries are empty (open) and do not contain frass.

   a. Cut off the branch with the damaged shoot.
   b. Rotate the shoot looking for entrance holes.
   c. Horizontally slice the branch open with a knife.
   d. Look for galleries or the pine shoot beetle.

Step 7: Issue a Certificate for Inspected, Pine Nursery Stock Originating in Quarantined Areas:

Issue a Certificate for inspected, pine nursery stock originating in quarantined areas that are destined to non-quarantined areas (see **Table 3-18**).

1. Based on the results of your inspection, determine whether to issue a Certificate for the entire shipment, or to reject individual trees (see **Table 3-18.)**

Table 3-18: Take Final Action Based on Inspection of Pine Nursery Stock

If you find:	Then:
Evidence of infestation in any one tree, which is the presence of: • a clean gallery, and/or • the pine shoot beetle	1. NOTIFY the grower/shipper of the inspection results. 2. REJECT the infested trees. 3. ISSUE a Certificate (PPQ Form 540) for the pine nursery stock found free from the pine shoot beetle. GO to Appendix 10 on how to complete Certificates. 4. MONITOR shipment to ensure that the conditions of movement are met to safeguard the shipment. GO to substep 2. 5. REPORT to your supervisor, the number of trees rejected.
No evidence of infestation by the pine shoot beetle in any inspected tree	• ISSUE a Certificate (PPQ Form 540) for the entire shipment. GO to Appendix 10 on how to complete Certificates. • MONITOR shipment to ensure that the conditions of movement are met to safeguard the shipment. GO to substep 2.

Step 7 (continued)

2. Monitor the shipment to ensure that the conditions of movement are set to safeguard the shipment (see **Table 3-19**).

Table 3-19: Safeguard Shipments of Pine Nursery Stock

If a shipment is moving during:	And the ambient air temperature is:	Then:
May June July August September October	Above 10°C (50°F)	REQUIRE the following conditions of movement to safeguard the shipment: • SHIP in an enclosed or completely covered vehicle (plastic, canvas, or other closely woven cloth) to prevent access by the pine shoot beetle.•MOVE through the quarantined areas without stopping except for dropoff loads, refueling, or traffic conditions such as traffic lights or stop signs. • INDICATE the point of origin on the accompanying paperwork.
	At or below 10°C (50°F)	REQUIRE the following conditions of movement to safeguard the shipment: • MOVE through the quarantined areas without stopping except for dropoff loads, refueling, or traffic conditions. • INDICATE the point of origin on the accompanying paperwork.
November December January February March April	→	→

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APPENDIX 1
Definitions, Abbreviations, and Terms

Brood material--Dead trees, logs, tree stumps, pine chips and nuggets, firewood of pine (*Pinus* spp.) which have been cut within the last year.

Certificate--A document (PPQ Form 540) in which an inspector, or person operating under a Compliance Agreement, affirms that a specified regulated article is free of pine shoot beetle and may be moved interstate to any destination.

Compliance Agreement--A written agreement (PPQ Form 519) between APHIS and a person engaged in processing, growing, handling, utilizing, or moving regulated articles, in which the person agrees to comply with the provisions presented in this manual.

Infestation--The presence of the pine shoot beetle or the existence of circumstances that make it reasonable to believe that the pine shoot beetle is present.

Interstate--From any State into or through any other State.

Limited Permit--A document (PPQ Form 530) which is issued by an inspector affirming that the regulated article identified on the document is eligible for interstate movement in accordance with the conditions listed in this manual only to a specified destination(s) and only in accordance with specified conditions. Persons operating under Compliance Agreements may issue Limited Permits.

Moved (move, movement)--Shipped, offered for shipment, received for transportation, transported, carried, or allowed to be moved, shipped, transported, or carried.

Person--Any association, company, corporation, firm, individual, joint stock company, partnership society, or other entity.

Pine nursery stock--All *Pinus* spp. woody plants, shrubs, and rooted trees, including dug (balled and burlapped) Christmas trees, and ornamental greenhouse grown pine, such as bonsai.

Pine shoot beetle--An insect known as *Tomicus piniperda*, in any stage of development. It is a highly destructive pest of pine trees. Information about the life cycle and characteristics of the pine shoot beetle are detailed in Appendix 4 of this manual.

Prothorax--The anterior division of the thorax of an insect, bearing the first pair of legs.

Quarantined area--Any State, or any portion of a State listed in Appendix 7 of this manual where the pine shoot beetle has been found by an inspector, areas in which the Agency has reason to believe the pine shoot beetle is present, and areas considered necessary to quarantine because of their inseparability for quarantine enforcement purposes from localities where the pine shoot beetle has been found.

Regulated article--Christmas trees and nursery stock of pine (*Pinus* spp.); logs and lumber with bark attached of pine (*Pinus* spp.); bark nuggets including bark chips of pine (*Pinus* spp.); tree stumps of pine (*Pinus* spp.); wreaths and garland of pine (*Pinus* spp.); and raw materials for pine wreaths and garland.

Stand--A continuous growth of pine trees.

State--The District of Columbia, Puerto Rico, the Northern Mariana Islands, or any State, territory, or possession of the United States.

APPENDIX 2
Identification of Host Plants

Introduction:

Use this appendix as a guide to identify host plants--species of pine. The appendix provides descriptive characteristics of four types of conifers: firs, larches, spruces, and pines. It is critical to positively survey and regulate only pine. Therefore, this appendix will help you differentiate between these conifers to ensure that you are working only with pine trees.

You need to focus only on species of pine because they are the primary hosts for the pine shoot beetle. Also, the regulation restricts the movement of pine Christmas trees, pine nursery stock, and pine logs or lumber. And, the survey plan for the Pine Shoot Beetle Program will focus on pines.

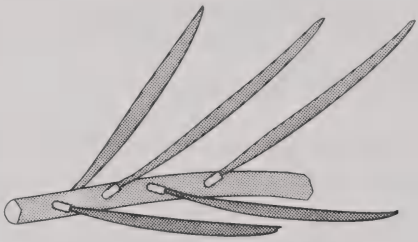
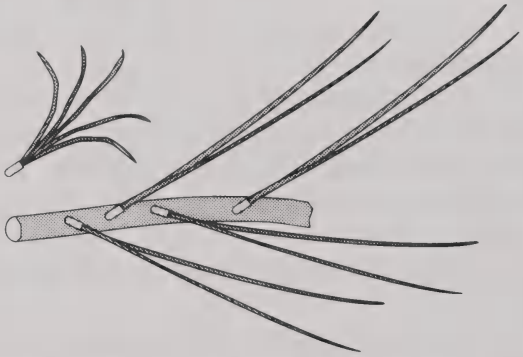
The appendix has a chart comparing the characteristics of firs, larches, spruces, and pines. It also lists the primary hosts of the pine shoot beetle which focus on 19 species of pine. Additionally, a list of references is in this appendix which you can access to further identify the species of pine. These references should be introduced to you through training and supervision at the local level.

When trying to locate host pines, concentrate on finding Christmas tree farms and plantations, nurseries, ornamental or commercial plants, saw mills, pulp mills, gathering yards, roadside plantings, and privately grown stands of trees. Local contacts and sources will help find sites where pines can be found. For example, State departments of agriculture and natural resources, Forest Service, County offices, Cooperative extension service, State highway departments, and owners of Christmas tree farms and plantations, nurseries, saw and pulp mills.

Comparing Types of Conifers:

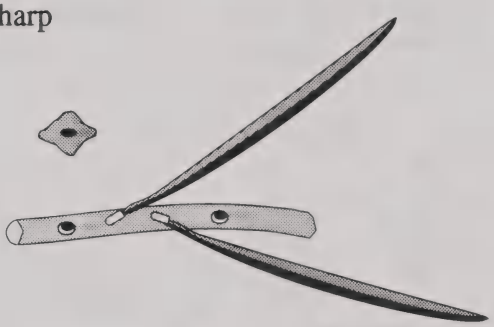
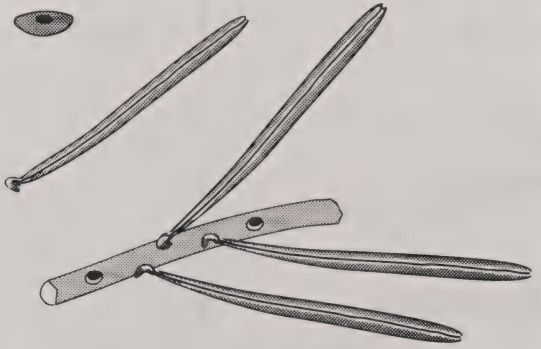
Step 1: Using **Table 5-1,** compare the needles attached to the branches.

Table 5-1: How Needles Are Attached to a Conifer Branch

If the needles attach to the branch as a:	Then:
Single needle 	GO to Step 2
Cluster or bunch 	GO to Step 3

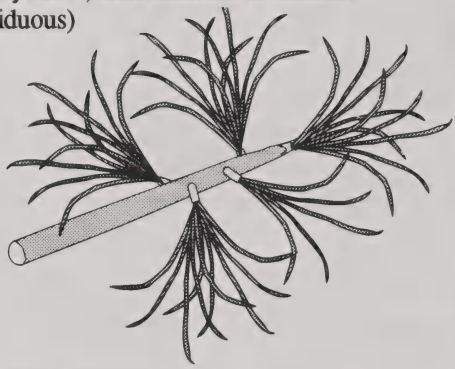
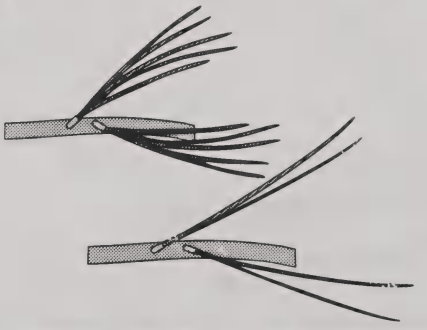
Step 2: Using **Table 5-2,** compare needles that are attached singly to the branch.

Table 5-2: Characteristics of Conifers With Single Needles

If the single needles are as listed below:	Then:
• Four-sided • Stiff • Sharp 	GO to Step 4
• Flat to plump • Blunt • Expanded base • Silvery lines on needles 	GO to Step 5

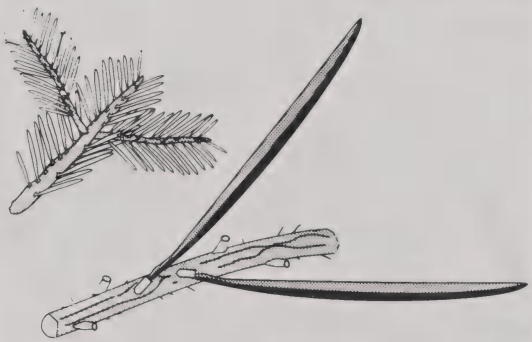
Step 3: Using **Table 5-3**, compare needles that are attached to the branches in clusters or bunches.

Table 5-3: Characteristics of Conifers With Cluster or Bunch of Needles

If the characteristics of the cluster or bunch of needles are as listed below:	Then:
• Numerous needles from spurs (projecting part of branch; dense, brushlike clusters) • Soft • Flat • Turn yellow, shed needles in autumn (deciduous) 	GO to Step 6
Bundled in fascicles of 5 needles, or 2-3 needles 	GO to Step 7

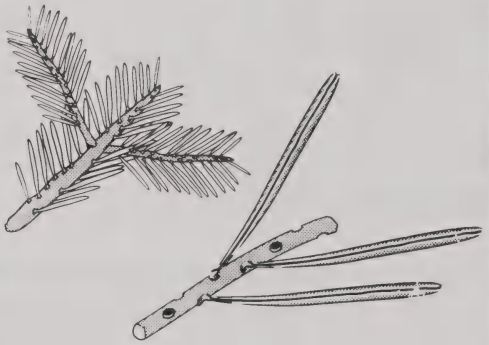
Step 4: Using **Table 5-4**, verify the characteristics of Spruce branches.

Table 5-4: Characteristics of the Branches of Spruce

Verify that the characteristics of the branches are as listed below:	Then consider the type of conifer:
• Branch tips with twigs growing which resembles a cross • Where needles have fallen, the branches are rough and warty 	Spruce

Step 5: Using **Table 5-5**, verify the characteristics of Fir branches.

Table 5-5: Characteristics of the Branches of Fir

Verify that the characteristics of the branches are as listed below:	Then consider the type of conifer:
• Needles and twigs are arranged in flat sprays • Where needles have fallen, the branches have round, depressed scars • Branch tips with twigs growing which resembles a cross 	Fir

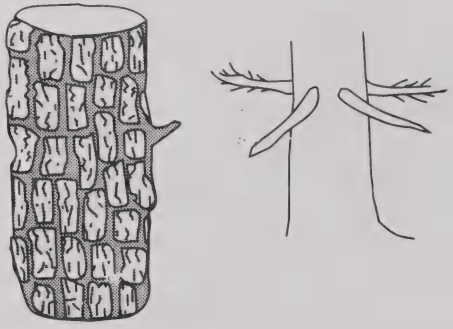
Step 6: Using **Table 5-6**, verify the characteristics of Larch branches.

Table 5-6: Characteristics of the Branches of Larch

Verify that the characteristics of the branches are as listed below:	Then consider the type of conifer:
• Where needles have fallen, the branches have warty spurs • Branch tips with twigs growing which resembles a cross 	Larch

Step 7: Using **Table 5-7,** verify the characteristics of Pine branches.

Table 5-7: Characteristics of the Branches of Pine

Verify that the characteristics of the branches are as listed below:	Then consider the type of conifer:
• Whorled branches, spreading on all sides of the trunk (normally one whorl added per year) • Bark which usually appears like rectangular plates (except white pine) 	Pine

Characteristics of Pines:

Pines are evergreen with fascicles of two to five needles. A fascicle is a bundle or cluster of needles wrapped together by a dry sheath at the base of the needles. Some pines such as the white pine have five needles in a fascicle, while other pine trees such as the Scotch pine and Virginia pine have two needles (see *Figure 5-1*). Yet, other pines have two to three needles in a fascicle.

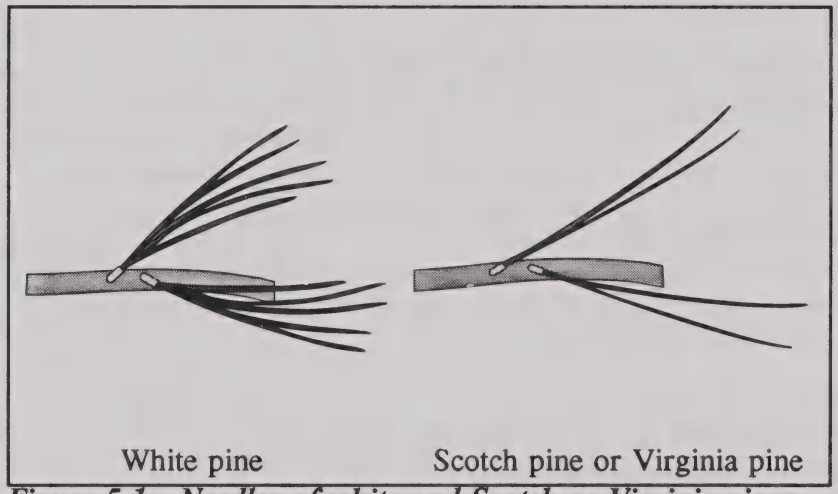


Figure 5-1: Needles of white and Scotch or Virginia pines

Pines grow from a cluster of buds at the tip of a branch. The new branches horizontally radiate from the base of each season's growth, creating a whorl (see pictures 2-1, 2-11, 2-13 of Appendix 2 for examples). The distance between whorls depends on growing conditions and the species of pine. It ranges from ½ inch in mugo pine (low, broad, dense) to 4 inches in white pine.

List of Primary Hosts of the Pine Shoot Beetle (*Tomicus piniperda*):

The following listed primary hosts have been chosen because they occur in the United States at an abundant level to warrant survey. Thirteen of the listed species of pine are illustrated at the end of this appendix. The number in brackets [] corresponds with the picture number. The text and illustrations in the pictures have been reprinted by permission from the Reader's Digest Association, Inc.

Some species have specific geographic distribution that you need to be aware of to facilitate your survey work. Also, know that it is difficult to identify pine to species. That is why in addition to using this manual, you need to reference local publications which will further describe geographic distribution, needle, cone, and branch characteristics of each species. Finally, if you are unable to identify the host tree while surveying, follow the directions in **Table 2-3** on page 2.18 of this manual to submit a twig of the host tree for identification.

Pinus banksiana (Jack pine) [2-1]
Pinus contorta (Lodgepole pine) [2-2]
Pinus echinata (shortleaf pine) [2-3]
Pinus edulis (pinyon pine) [2-4]
Pinus elliottii (slash pine) [2-5]
Pinus jeffreyi (Jeffrey pine)
Pinus lambertiana (sugar pine) [2-6]
Pinus monticola (Western white pine)
Pinus mugo (Swiss mountain pine or mugo pine)
Pinus nigra (Austrian pine)
Pinus palustris (longleaf pine) [2-7]
Pinus ponderosa (ponderosa pine) [2-8]
Pinus radiata (Monterey pine)
Pinus resinosa (red pine) [2-9]

List of Primary Hosts (continued)

Pinus rigida (Pitch pine) [2-10]
Pinus strobus (Eastern white pine) [2-11]
Pinus sylvestris (Scotch pine) [2-12]
Pinus taeda (loblolly pine) [2-13]
Pinus virginiana (Virginia pine)

References to Facilitate Identification:

Illustrations, pictures, and additional information can be found in the following references at the local library and book store. These references should be introduced to you through training and supervision at the local level.

1. *A Field Guide to Trees and Shrubs*, George A. Petrides and Roger Tory Peterson; Peterson's Field Guide Series.

2. *The Audubon Society Field Guide to North American Trees*; Elbert L. Little; Alfred A. Knopf, Inc.

3. *A Guide to Field Identification, Trees of North America*; C. Frank Brockman; Western Publishing Company, Inc.

4. *North American Trees*; Richard J. Preston, Jr.; Iowa State University Press.

5. *Reader's Digest North American Wildlife*; Reader's Digest Association, Inc.

6. *Native and Cultivated Conifers of Northeastern North America, A Guide*; by Edward A. Cope; Cornell University Press.

References to Facilitate Identification (continued)

7. *PINES, Drawings and Descriptions of the Genus Pinus*; Aljos Farjon; E. J. Brill/Dr. W. Backhuys, Leiden.

8. State department identification guides to State trees.

APPENDIX 3
Inspection Procedures for the Pine Shoot Beetle (*Tomicus piniperda*)

Introduction:

This appendix presents techniques to use when inspecting pine trees for evidence of infestation and presence of the pine shoot beetle. Follow these techniques when:

- Conducting visual surveys of pine trees for the detection and delimiting survey aspects of the Pine Shoot Beetle Program
- Facilitating the movement of pine Christmas trees, wreaths, and garland, and pine nursery stock.

SUGGESTION: Wearing solar block sunglasses or brown tinted glasses enhances the ability to see discolored shoots.

Step 1: Look All Around the Tree for Symptoms and Evidence of Pest Infestation:

Look all around the tree for symptoms and evidence of pest infestation. Concentrate your inspection on the upper part of the tree and for nursery stock, look at all the branches. You must go beyond the initial identification of symptoms to verify the evidence. If you find any of the following symptoms, continue with your inspection by going to **Step 3**.

1. Discolored shoots, needles, or tips of shoots. Look for lighter greens, yellows, and browns. The discoloring may be very mild. As the growing season progresses, the occurrence of damaged shoots will be higher and the discoloring will be more pronounced. Also, in thick stemmed species such as Austrian pine, the damage is less apparent.

Step 1 (continued)

2. Entrance holes in the sides of shoots. The holes are round and approximately 1/8" in diameter. See ***Figure 6-1***.

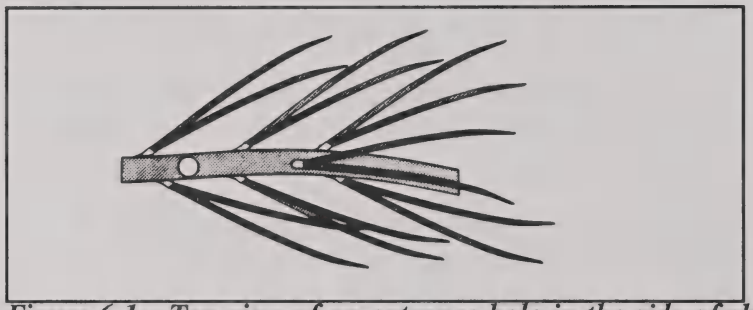


Figure 6-1: Top view of an entrance hole in the side of shoot

Cream colored pitch tubes may form around entrance holes. Pitch tubes are a buildup of sap which creates a collar-like formation around entrance holes when temperatures have gone below 40°F. See ***Figure 6-2***.

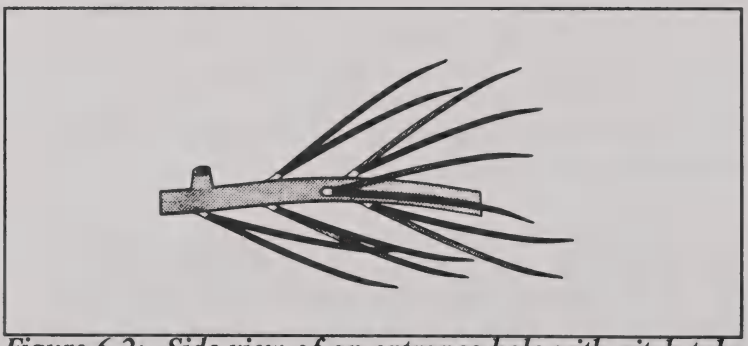


Figure 6-2: Side view of an entrance hole with pitch tube

Step 1 (continued)

3. Drooping or broken shoots (tips of the lateral branches which are the current season's growth) which still may be attached to the tree. See ***Figure 6-3***.

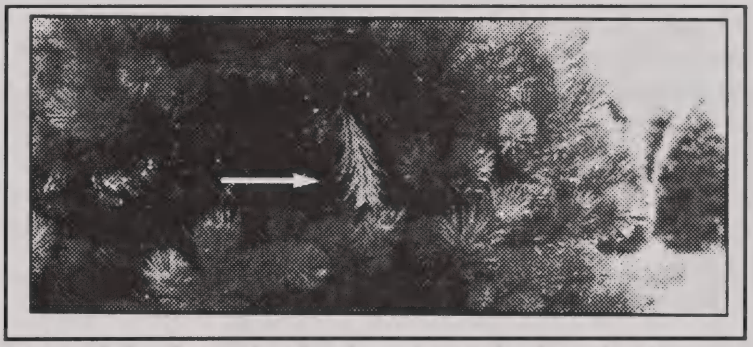


Figure 6-3: Example of a drooping or broken shoot

4. Shoots which pop off the tree when you briskly brush it back and forth with your hand.

5. Shoots that have broken off the tree and are lying on the ground.

NOTE: There may be damage caused by other pests, diseases, or environmental factors. For example, white pine rust, pine shoot moths, pales weevil, cankers, or the wind.

NOTE: As the growing season progresses, you will see a higher occurrence of damaged shoots. Also, the damage will be more pronounced (browning, yellowing, drooping, tips lying on the ground).

HINT: Look at trees adjacent to mature standing trees and brood material (dead trees, logs, tree stumps, pine chips and nuggets, firewood).

Step 1 (continued)

HINT: When inspecting trees that have been painted, be aware that the paint does not adhere well to severely damaged shoots. The damaged shoots still will be discolored.

HINT: Entrance holes may be found anywhere in this year's growth or at the tip of last season's growth. Look just below the first set of branches at the base of this year's growth.

Step 2: Dissect the Shoot to Verify the Evidence:

Dissect the shoot to verify the evidence if you see a symptom of pest infestation. Evidence would include presence of a clean gallery and/or presence of the pine shoot beetle.

1. Using a knife, cut off the branch with the damaged shoot approximately 12" back from its tip (include two seasons of growth).

2. Rotate the shoot looking for round, 1/8" diameter entrance holes. A magnifying lens may be helpful in locating the entrance holes. See ***Figure 6-4***.

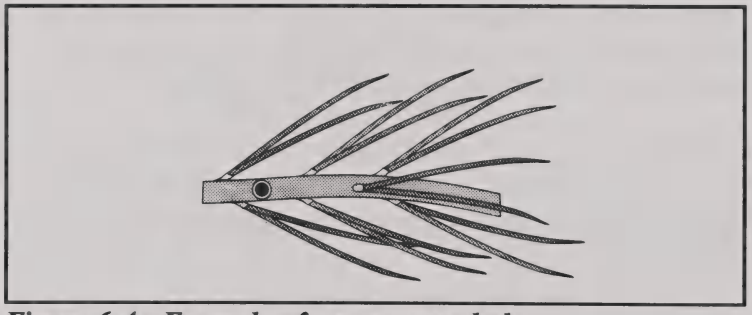


Figure 6-4: Example of an entrance hole

Step 2 (continued)

3. Horizontally slice the branch open with a knife. While securing the branch between your thumb and index finger of one hand, begin slicing slowly from the cut end through to the tip of the branch.

4. Look for a clean, hollowed or tunneled out shoot (gallery). See ***Figure 6-5***. The galleries go up or down the main terminal leader, but also go to lateral terminals. Galleries made by the pine shoot beetle are clean, open, and free of frass. There may be a pine shoot beetle present. Refer to Appendix 4 when looking for the pine shoot beetle.

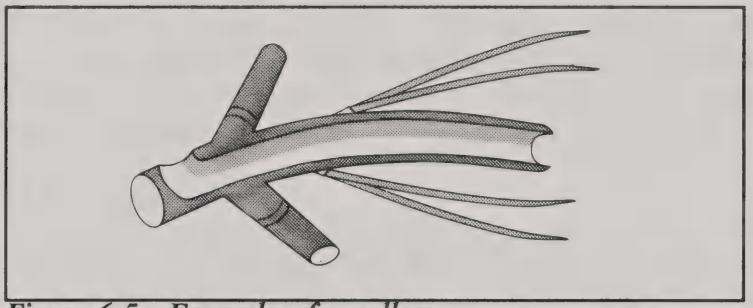


Figure 6-5: Example of a gallery

5. Pick up shoots that have broken off the tree. Look at the end of the shoot and break or slice it open to see if it is solid (packed solid with frass (sawdust)) or hollow inside. Pine shoot beetle galleries are hollow.

APPENDIX 4
Identification of *Tomicus piniperda* (Pine Shoot Beetle)

Introduction:

Use this appendix to help you identify the pine shoot beetle (*Tomicus piniperda*) in its adult stage. The appendix has narrative descriptions of the pine shoot beetle. The number in brackets [] corresponds with the picture number. The pictures are located in the back of this appendix.

The pine shoot beetle is a highly destructive pest of pine trees. The current season's growth (shoots) of many species of pine serve as the primary hosts for feeding by the adult beetles, while felled logs and weakened trees serve as breeding sites for the pine shoot beetle.

Once established in an area, the pine shoot beetle has a great potential to spread. Adults can fly several kilometers, and the wood, nursery stock, and trees they infest are often transported long distances.

Life Cycle:

The pine shoot beetle has one generation a year. Adult beetles overwinter in short tunnels which are in and under the bark at the base of trees, but they may also overwinter in hollowed-out pine shoots in warmer climates.

In the spring, the adult beetles seek brood material (cut tree stumps or logs, or trunks of weakened, damaged trees) for breeding and reproduction [4-1]. The thickness of the tree's bark needs to be greater than 4 mm (0.157 inch). Then, they mate and lay eggs in vertical galleries in the inner bark. Galleries are oriented from a golf club head-shaped nuptial chamber at the base of the trunk toward the upper or top of the trunk (parallel with the grain). The adult parent beetles will stay in brood galleries for about 2 months during February, March, or April.

Life Cycle (continued)

The parents emerge from the brood material and fly to terminals for feeding. Their offspring, the larvae, continue feeding in galleries under the bark until they mature into adults. The next generation of beetles then tunnel through the outer bark in May and June, creating 2mm wide exit holes [4-2].

As adult beetles, they fly to the upper part of pine trees as their parents did earlier and bore into the center of the shoots (tips of the lateral branches which are the current season's growth) [4-3]. They feed in the center of the shoots, producing clean galleries from 4-9cm long [4-4]. Each adult may destroy 3-6 shoots. Damaged shoots droop, become yellow to red and eventually fall to the ground [4-5]. This feeding can retard the tree's growth. See ***Figure 7-1*** for an illustration of the life cycle of pine shoot beetle.

Life Cycle (continued)

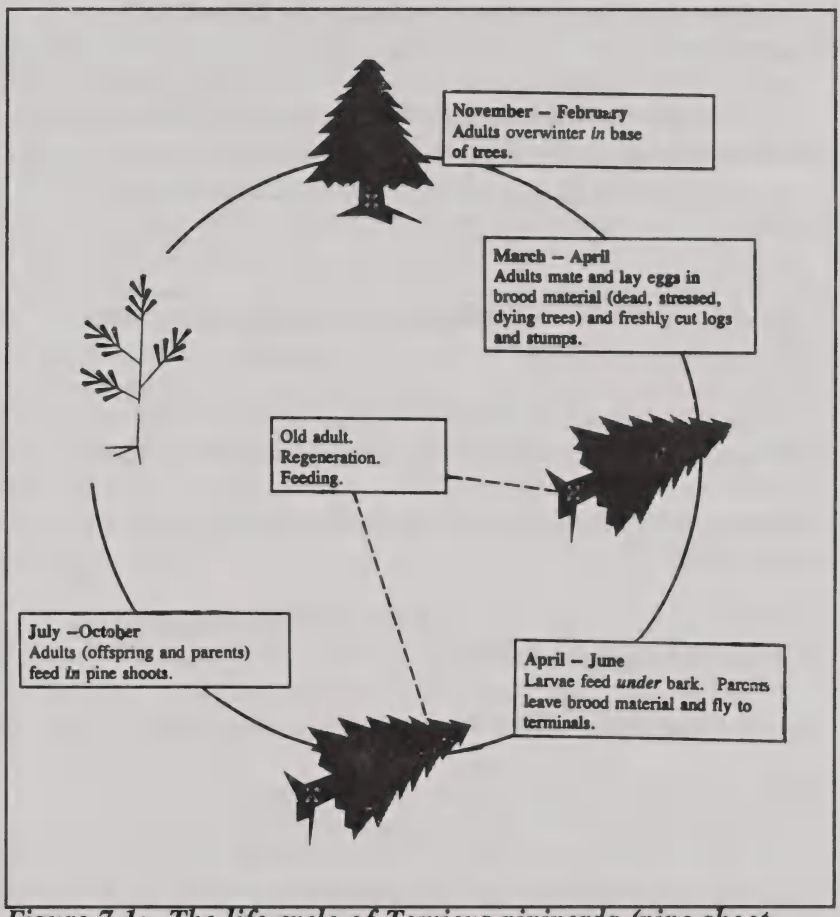

November – February
Adults overwinter *in* base of trees.
March – April
Adults mate and lay eggs in brood material (dead, stressed, dying trees) and freshly cut logs and stumps.
Old adult.
Regeneration.
Feeding.
April – June
Larvae feed *under* bark. Parents leave brood material and fly to terminals.
July –October
Adults (offspring and parents) feed *in* pine shoots.

Figure 7-1: The life cycle of Tomicus piniperda (pine shoot beetle)

Characteristics:

In its adult stage, the pine shoot beetle has the following characteristics:

1. Cylindrical shaped beetle, approximately 3-5mm (3/16 inch) in length [4-6]. See ***Figure 7-2***.

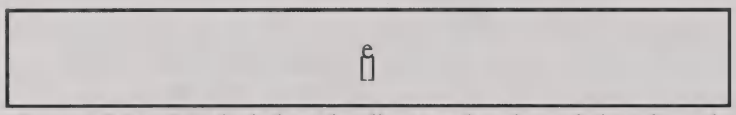


Figure 7-2: Symbol that duplicates the size of the pine shoot beetle

2. The beetle's head is shiny black with a smooth prothorax. Its wing covers vary from reddish-brown to black.

In its larval stage, the pine shoot beetle has the following characteristics:

1. Legless, slightly curved grubs of Scolytidae, and can reach 5mm in length when fully grown.

2. The larvae have a brown head and white body.

NOTE: Immature stages, especially the pupae, are difficult to identify in the field.

Symptoms and Evidence of Infestation:

The symptoms and evidence of infestation caused by the pine shoot beetle are listed below. They are also presented with illustrations in Appendix 3 of this Manual.

Symptoms and Evidence of Infestation (continued)

1. Discolored shoots, needles, or tips of shoots [4-5]. The discoloring occurs when adults feed inside the new growing tips. At the beginning of a growing season the discoloring may be very mild--lighter greens, yellows, and browns. As the growing season progresses, the occurrence of damaged shoots will be higher and the discoloring will be more pronounced. Also, in thick stemmed species such as Austrian pine, the damage is less apparent.

2. Entrance holes in the sides of shoots [4-7]. The holes are round and approximately 1/8 inch in diameter. The adult beetles leave this characteristic hole where they entered the shoot. They exit using the same hole. It is common to find two or more holes in a shoot. Cream colored pitch tubes may form around entrance holes. Pitch tubes are a buildup of sap which creates a collar-like formation around entrance holes when temperatures have gone below 40°F.

3. Drooping or broken shoots which still may be attached to the tree or have broken off the tree and are lying on the ground [4-8]. The center of the shoot becomes hollowed out as the beetle burrows toward the terminal bud leaving the shoot with no support.

4. Clean, hollowed or tunneled out shoot (gallery) [4-4]. The galleries made by the pine shoot beetle are clean, open, and free of frass. They may go up or down the terminal (main leader) or out the laterals. There will be one entrance and exit hole. Also, there may be a pine shoot beetle present.

APPENDIX 5
Examples of the Pine Shoot Beetle Survey Field Data Worksheets

This appendix provides you with examples of the survey field data worksheets used for the Pine Shoot Beetle Program. See ***Figure 8-1*** and ***Figure 8-2***. Directions for completing survey worksheets are detailed under the Survey sections of this manual titled Conduct Visual Surveys and Conduct Trapping Surveys.

A supply of the survey worksheets will be stored at designated PPQ work locations. The worksheets will be distributed upon request.

PINE SHOOT BEETLE SURVEY FIELD DATA WORKSHEET
PLEASE PRINT

1. TYPE OF DATA (Check appropriate boxes) ☐ Trapping* Trap
☐ Detection Survey ☒ Delimiting Survey ☒ Visual Survey ☐ Lindgren* Trap

22. TRAP SERVICE RECORD (Only for Trapping Survey)

Date serviced	Condition of trap (damage)	If collection is made, record PPO Form 391 Number

2. STATE: IL
3. COUNTY: DeKalb
4. ☒ NEAREST TOWN: Auburn
☐ TOWNSHIP

5. STREET ADDRESS OF PROPERTY: R.R. 1, 300 North, Concord, IL 46344

6. ADDRESS OF OWNER IF DIFFERENT FROM ABOVE: P.O. Box 123, Auburn, IL 46340

7. TYPE OF PROPERTY (nursery, tree farm, Christmas tree farm, residential, etc.): Christmas tree farm

8. NAME OF LANDOWNER: Jack Pine
PHONE NUMBER: 219-236-5111

9. DATE OF VISUAL SURVEY: 7-14-93

10. TIME: 10:00 am

11. SECTION NUMBER OR LEGAL DESCRIPTION: SW SE NW NW

12. COORDINATES: Lat. _____ Long. _____

13. Number of years in use: 16
Number of acres in use: 40

14. CONDITIONS (Check)
☒ CLEAR ☐ PARTLY CLOUDY ☐ CLOUDY ☐ RAIN ☐ OTHER (Specify) _____

15. KIND OF HOST: Austrian Pine

16. NUMBER OF HOST MATERIAL LOOKED AT: 30 trees

17. TREE CONDITION AND STAND STATUS
☒ GOOD ☐ POOR
☐ PURE ☐ MIXED
STAND AGE: 7 YEARS
PLANT HEIGHT: 10 FEET

18. INSPECTION RESULTS
☐ NEGATIVE ☒ POSITIVE

19. INSECT ADULTS
NUMBER COLLECTED: 6
NUMBER SHIPPED: 6
PPO FORM 391 COLLECTION NUMBER: IA001

20. SURVEYOR'S NAME, AGENCY, AND TELEPHONE NUMBER (Please Print): Holly Hoek, USDA APHIS PPQ, 219-231-1113

21. DATE SUBMITTED: 7-14-93

23. MAP OF PROPERTY

Auburn NE S
ID (Hoek)
3 acres
Austrian pines

24. REMARKS: Correct

Figure 8-1: Example of a survey worksheet completed for a visual survey

PINE SHOOT BEETLE SURVEY FIELD DATA WORKSHEET
PLEASE PRINT

1. TYPE OF DATA (Check appropriate boxes): ☒ Detection Survey ☐ Delimiting Survey ☐ Visual Survey ☐ Thousand's Trap ☒ Lindgren's Trap

2. STATE: HI
3. COUNTY: Lake
4. ☒ NEAREST TOWN ☐ TOWNSHIP: Clarkdale
5. STREET ADDRESS OF PROPERTY: 4065 S 19 Mile Road, Clarkdale, AZ 86302
6. ADDRESS OF OWNER IF DIFFERENT FROM ABOVE:
7. TYPE OF PROPERTY (Nursery, tree farm, Christmas tree farm, residential, etc.): Residential
8. NAME OF LANDOWNER: Joseph Kesile
PHONE NUMBER: 618 745 3021
9. DATE OF VISUAL SURVEY:
10. TIME:
11. SECTION NUMBER OR LEGAL DESCRIPTION:
12. COORDINATES: Lat. _____ Long. _____
Number of trees in row: 10
Number of rows in area: 10
13. Number of traps in area: 10
14. CONDITIONS (Check): ☐ CLEAR ☒ PARTLY CLOUDY ☐ CLOUDY ☐ RAIN ☐ OTHER (Specify) _____
15. KIND OF HOST: White Pine
16. NUMBER OF HOST MATERIAL LOOKED AT:
17. TREE CONDITION AND STAND STATUS: ☒ GOOD ☐ POOR ☐ PURE ☒ MIXED STAND AGE: 5 YEARS PLANT HEIGHT: 7 FEET
18. INSPECTION RESULTS: ☐ NEGATIVE ☐ POSITIVE
19. INSECT ADULTS: NUMBER COLLECTED _____ NUMBER SHIPPED _____ PPQ FORM 391 COLLECTION NUMBER _____
20. SURVEYOR'S NAME, AGENCY, AND TELEPHONE NUMBER (Please Print): Jack Brown USDA APHIS PPQ, 602 745-1591
21. DATE SUBMITTED: 5-3-94

22. TRAP SERVICE RECORD (Only for Trapping Surveys)

Date Serviced	Condition of Trap Serviced	If collection is made, record PPQ Form 391 Number
5-3-94	Excellent	

23. MAP OF PROPERTY (Include prominent landmarks, roads, and indicate direction of north)

24. REMARKS

Figure 8-2: Example of a survey worksheet completed for a trapping survey

APPENDIX 6
Reporting Pine Shoot Beetle Detection Survey Data Into the National Agricultural Pest Information System (NAPIS)*

Introduction:

NAPIS is the official mechanism to store, manage, and retrieve summarized data from the pine shoot beetle survey for multistate, regional, and national use. NAPIS is used for maintaining a historical record and for summarizing the results of the trapping and visual survey seasons. The raw survey data should be managed within the State and may include dates and locations of individual survey activities as well as the species of host trees present on survey sites.

Each State should complete at least one NAPIS data input worksheet for each survey type (trapping or visual for detection or delimiting) in each county (see ***Figure 9-1***). Enter this record(s) after all survey results have been counted, but no later than December 1 of each year. The summary results should include the number of negative as well as positive observations. Note: Enter a positive record **immediately** for confirmations representing **new** State or county records.

The PPQ port director or State plant health director (SPHD) in each State must ensure that the data are entered into NAPIS by the State survey coordinator (SSC) or some other authorized party. The port director or SPHD is responsible for monitoring the data accuracy. Therefore, after the survey data are entered, the port director or SPHD reviews the data and compares the summarized data to the survey records. The port director or SPHD immediately corrects any error.

***NOTE** that the information and form contained in this appendix are the same as presented in NAPIS at http//www.ceris.purdue.edu/napis/.

Introduction (continued)

A data entry worksheet is in this appendix and can be reproduced for field use by data entry persons. The worksheet is also present on the CAPS WEB site as part of the Pine Shoot Beetle home page. This site is apt to have a more updated version than that in this manual. The worksheet is designed to provide all the information needed in the correct format. Appendix B of the NAPIS User Guide explains the one-line data entry input format of the NAPIS data base. The SSC's or other authorized parties can use these guidelines to complete the data entry of the survey results.

Instructions:

Some of the blocks on the forms have standard entries which are already completed, while others do not require any kind of input and should be left blank.

Field	Label	Description of Contents
A	Observation Number	Unique alphanumeric identifier assigned for a given User-ID, observation year, and EPA-Pest-Code combination. Create your own unique record identifier.
B	Observation Date	Date (YYYYMMDD) of the observation or ending date for observations spanning more than 1 day. Use the date when field survey is concluded. For positive finds, enter the exact date.

Instructions (continued)

Field	Label	Description of Contents
C	Data Source	Code from the REF-DATA-SOURCE reference file. 11=USDA-APHIS 12=US Forest Service 13=STATE AG Dept 14=UNIV/EXT 16=Joint State/Federal
D	State-County	5 digit code from the REF-STATE-COUNTY file
E	EPA Site Code	5 digit code from the REF-CROP reference file. Precompleted with code # 99999, which indicates unknown. This code is used because data is collected for an entire county with multiple sites.
F	Crop Life Stage	Leave blank, no entry required.

Instructions (continued)

Field	Label	Description of Contents
G	Crop Situation	5 digit code from the REF-CROP-SITUATION reference file. Use one of the following: Detection survey = 29024 Delimiting survey = 29025
H	Latitude	Field was split into two separate fields September 1997. One more comma required for correction input. LEAVE BLANK
I	Longitude	
J	EPA Pest Code	Code from REF-PEST reference file. Precompleted with INBQCNA, which is the code for Pine Shoot Beetle.
K	Pest Life Stage	Code from the REF-PEST-LIFE-STAGE reference file. Precompleted with I5, which is code for adult insect.

Instructions (continued)

Field	Label	Description of Contents
L	Pest Status	Code from the REF-PEST-STATUS reference file. • If no beetles detected, enter - • If beetles are detected, enter + • If this is a new State record, enter +2 • If this is a new county record, enter +3 • If a positive record is being entered, a decision needs to be made as to whether that county at that time is considered to be A—established or B—not known to be established
M	Survey Method	Code from REF-SURVEY-METHOD reference file. • For Lindgren® trap enter 00051 • For Theysohn® trap enter 00532 • For visual survey enter 00058 • For log trap enter 00534

Instructions (continued)

Field	Label	Description of Contents
N	Quantification	Contains the actual raw count of all of the beetles caught in traps or found in shoots represented by this record.
O	Descriptor Units	Code from the REF-DESCRIPTOR reference file. • For trap check(s) enter 330 • For visual survey enter 371 for summarized sites of different types. If record refers to a single type of site, use appropriate code from REF-DESCRIPTOR file.
P	Total Units Checked	Contains the number of units that were checked. Units are defined by descriptor code used above. This will be the number of sites or traps in the county.
Q	Positive Units	Contains the number of the traps or sites in/at which one or more beetles were detected.
R	Observation Duration	Number of days that the observation spans (number of days between survey started and survey completed).

Instructions (continued)

Field	Label	Description of Contents
S	Diagnostic Lab	Code from the REF-DIAGNOSTIC-LAB reference file. Must be used in conjunction with the Confirmation Method. Use only if beetles are caught; leave blank if no beetles caught.
T	Confirmation Method	Code from REF-SURVEY-METHOD reference file. Must be used in conjunction with the Diagnostic Lab code. If beetles were caught enter 90001, which is the code for "confirmation light microscope positive find." Leave blank if none were caught.
U	Biocontrol Target	Leave blank, no entry required.
V	Notes	The space can be used for comments in English or any prearranged code.

Instructions (continued)

November, 1997 NAPIS DATA ENTRY WORKSHEET FOR PINE SHOOT BEETLE ADULT SURVEYS FORM-07 page-1

(Complete one record per year for each survey type in each county.)**

Observation Number	Observation Date (year /month /day)	Data Source
(Assigned locally) create your own record identifier	Date when negative survey was completed in county. or For positive finds enter exact date.	11=USDA-APHIS 12=US Forest Service 13=STATE AG Dept 14=UNIV/EXT 16=Joint State/Federal

State-County	EPA Site Code	Crop Life Stage	Crop Situation
State & county FIPS codes from reference file	9 9 9 9 9, No site specified	Leave blank	29024 = detection survey 29025 = delimiting survey

Location Coordinates		EPA Pest Code
LEAVE BLANK Latitude	LEAVE BLANK Longitude	I N B Q C N A, pine shoot beetle

Pest Life Stage	Pest Status	Survey Method	Quantification
Adult	- = no beetles + = beetles detected +2 = if new state record +3 = if new county record ADD [A - Estblished or B - Not known to be established] to held describe each positive entry	00058 = visual 00051 = Lindgren trap 00532 = Theysohn trap 00534 = Trap, bait log	Total number of beetles collected or trapped.

Descriptor Units	Total Units Checked	Positive Units	Observation Duration	Diagnostic Lab
330 = traps or 371 = property(s)	Total number of traps or property(s)	Number of traps or property(s) at/in which beetles were found	Number of days between beginning & end of survey	Refer to lab reference file for code if positives were identified

Figure 9-1: Page 1 of a worksheet for pine shoot beetle detection survey

Instructions (continued)

November, 1997 NAPIS DATA ENTRY WORKSHEET FORM-07
FOR PINE SHOOT BEETLE
ADULT SURVEYS page-2

Confirmation Method	Biocontrol Target
9 0 0 0 1 ,	,
If beetles caught and positively identified use:	Leave blank

Notes
Comments in English or prearranged code about optional information Field now can contain up to 40 characters.

Figure 9-2: Page 2 of a worksheet for pine shoot beetle detection survey

APPENDIX 7
List of Quarantined Areas

Introduction:

Use **Table 10-1** to identify the quarantined areas that are regulated to contain the spread of the pine shoot beetle. These areas are where the pine shoot beetle has been found. The quarantined areas are presented by State and county. The entire county is quarantined unless stated otherwise.

Figures 10-1 through 10-10 are maps that illustrate the location of the quarantined areas as of 01/01/98.

This appendix is a historical record of the list of quarantined areas. It is updated annually. For a list that is maintained as survey results are recorded, go to the NAPIS home page on the Internet at the following address:
http://www.ceris.purdue.edu/napis/pests/psb/gcounty.txt

Quarantined Areas:

Table 10-1: List of Quarantined Areas

State:	County (entire county unless stated otherwise):		
Illinois	Boone Bureau Champaign Cook De Kalb DuPage Grundy Iroquois	Kane Kankakee Kendall Lake La Salle Lee Livingston McHenry	McLean Ogle Piatt Putnam Stephenson Vermilion Will Winnebago
Indiana	Adams Allen Benton Blackford Carroll Cass De Kalb Delaware Elkhart Fountain Fulton Grant Huntington	Jasper Jay Kosciusko Lagrange Lake La Porte Madison Marshall Miami Newton Noble Porter	Pulaski Randolph St. Joseph Starke Steuben Tippecanoe Wabash Warren Wayne Wells White Whitley

(Continued on next page)

Quarantined Areas (continued)

Table 10-1: List of Quarantined Areas (continued)

State:	County (entire county unless stated otherwise):		
Maryland	Allegany	Garrett	Washington
Michigan	Alcona Allegan Alpena Antrim Barry Bay Benzie Berrien Branch Calhoun Cass Charlevoix Clare Clinton Crawford Eaton Emmet Genesee Gladwin Grand Traverse Gratiot	Hillsdale Huron Ingham Ionia Isabella Jackson Kalamazoo Kalkaska Kent Lake Lapeer Lenawee Livingston Luce Mackinac Macomb Manistee Mason Mecosta Midland Missaukee Monroe	Montcalm Montmorency Muskegon Newaygo Oakland Oceana Ogemaw Osceola Oscoda Otsego Ottawa Presque Isle Saginaw St. Clair St. Joseph Sanilac Shiawassee Tuscola Van Buren Wachtenaw Wayne Wexford
New York	Allegany Cattaraugus Cayuga Chautauqua Erie Genesee	Livingston Monroe Niagara Ontario Orleans Oswego	Schuyler Seneca Steuben Tompkins Wayne Wyoming Yates

(Continued on next page)

Quarantined Areas (continued)

Table 10-1: List of Quarantined Areas (continued)

State:	County (entire county unless stated otherwise):		
Ohio	Allen Ashland Ashtabula Auglaize Carroll Columbiana Crawford Cuyahoga Defiance Delaware Erie Fulton Geauga Hancock Hardin Harrison	Henry Hocking Holmes Huron Jefferson Knox Lake Licking Logan Lorain Lucas Mahoning Marion Medina Mercer Morrow Ottawa	Perry Portage Putnam Richland Sandusky Seneca Stark Summit Trumbull Tuscarawas Union Van Wert Wayne Williams Wood Wyandot
Pennsylvania	Allegheny Armstrong Beaver Butler Cambria Cameron Clarion Clearfield	Crawford Elk Erie Forest Indiana Jefferson Lawrence McKean	Mercer Potter Somerset Venango Warren Washington Westmore- land
West Virginia	Brooke	Hancock	Ohio
Wisonsin	Grant		

Maps of Quarantined Areas:

The map of PPQ's Northeast Region, and separate maps of Michigan, Illinois, Indiana, Maryland, New York, Ohio, Pennsylvania, West Virginia, and Wisconsin, highlight the location of the quarantined areas (counties). See ***Figures 10-1 through 10-10.***

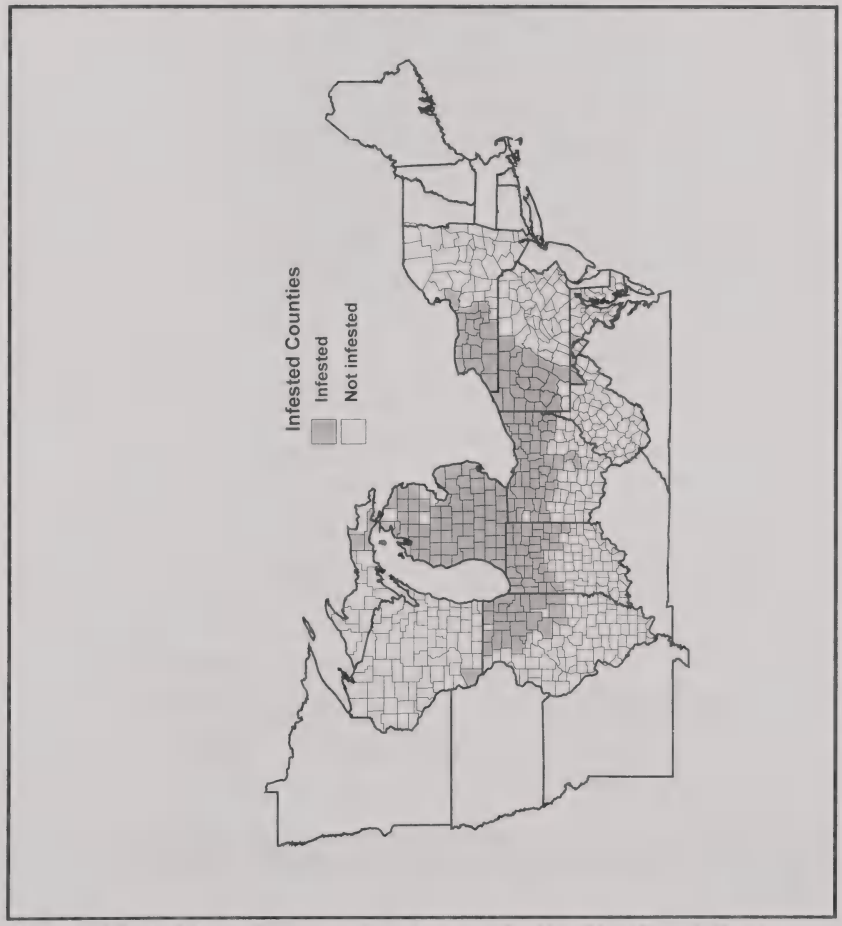


Figure 10-1: Map of quarantined areas in the Northeast Region as of 01/01/98.

Maps of Quarantined Areas (continued)

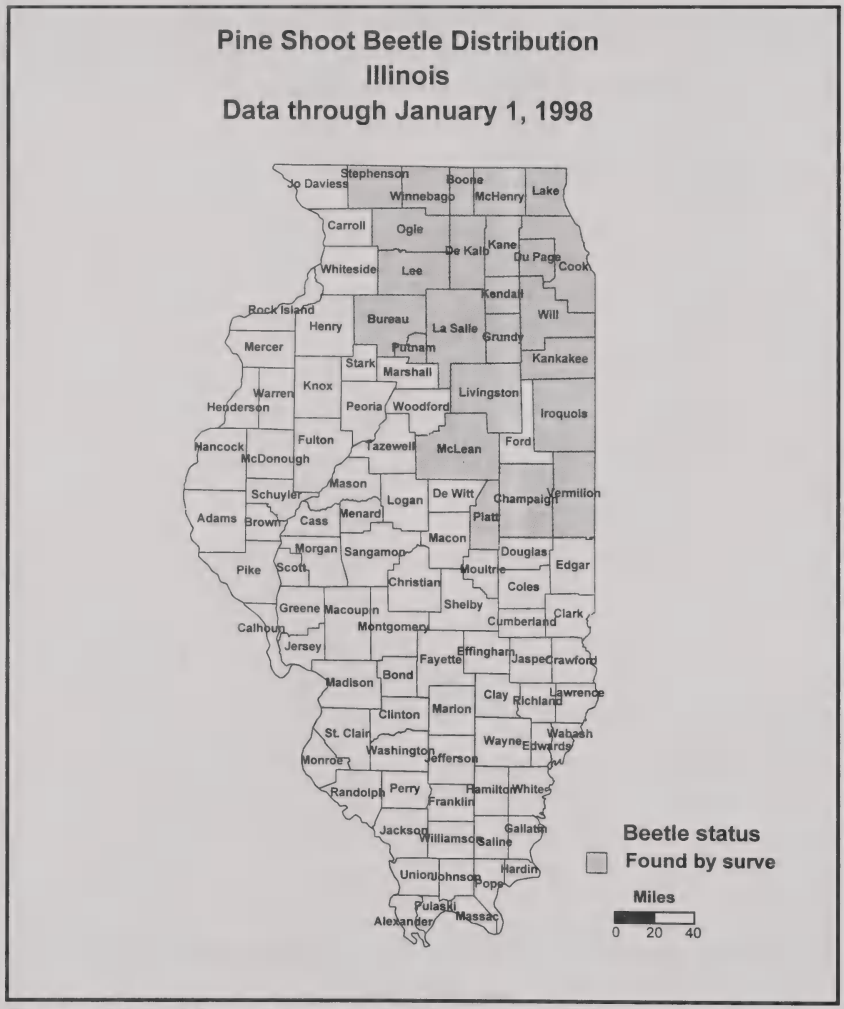


Figure 10-2: Map of quarantined areas in Illinois as of 01/01/98.

Maps of Quarantined Areas (continued)

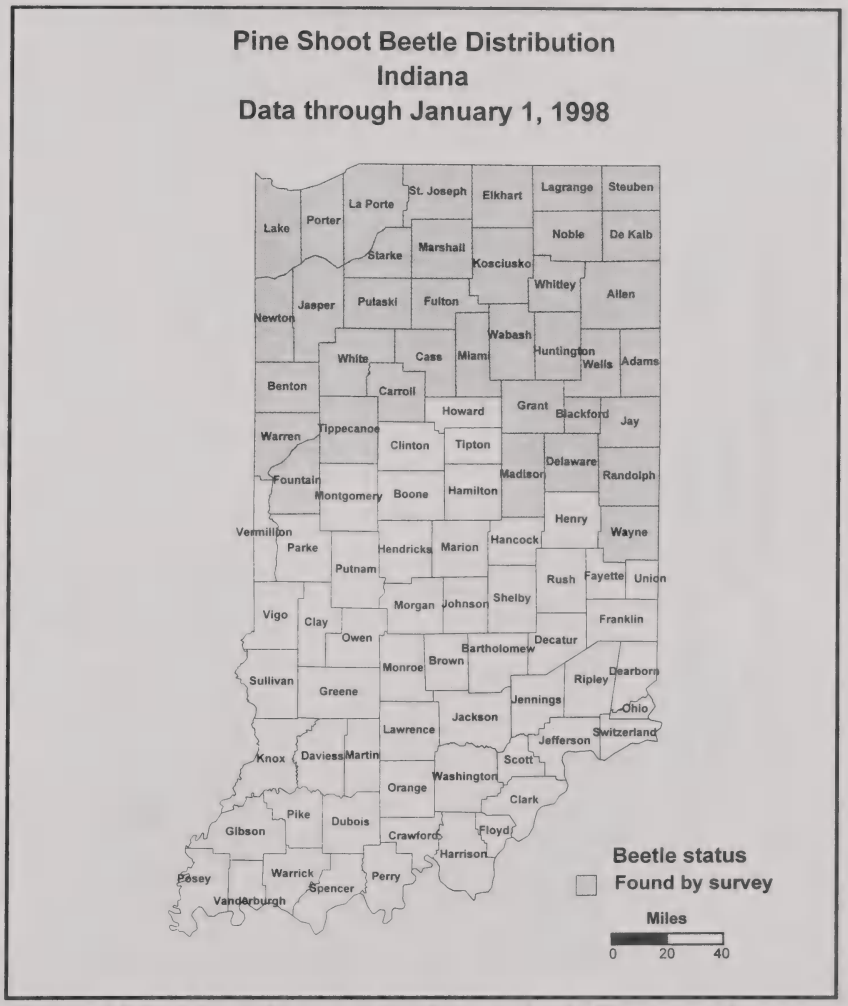


Figure 10-3: Map of quarantined areas in Indiana as of 01/01/98.

Maps of Quarantined Areas (continued)

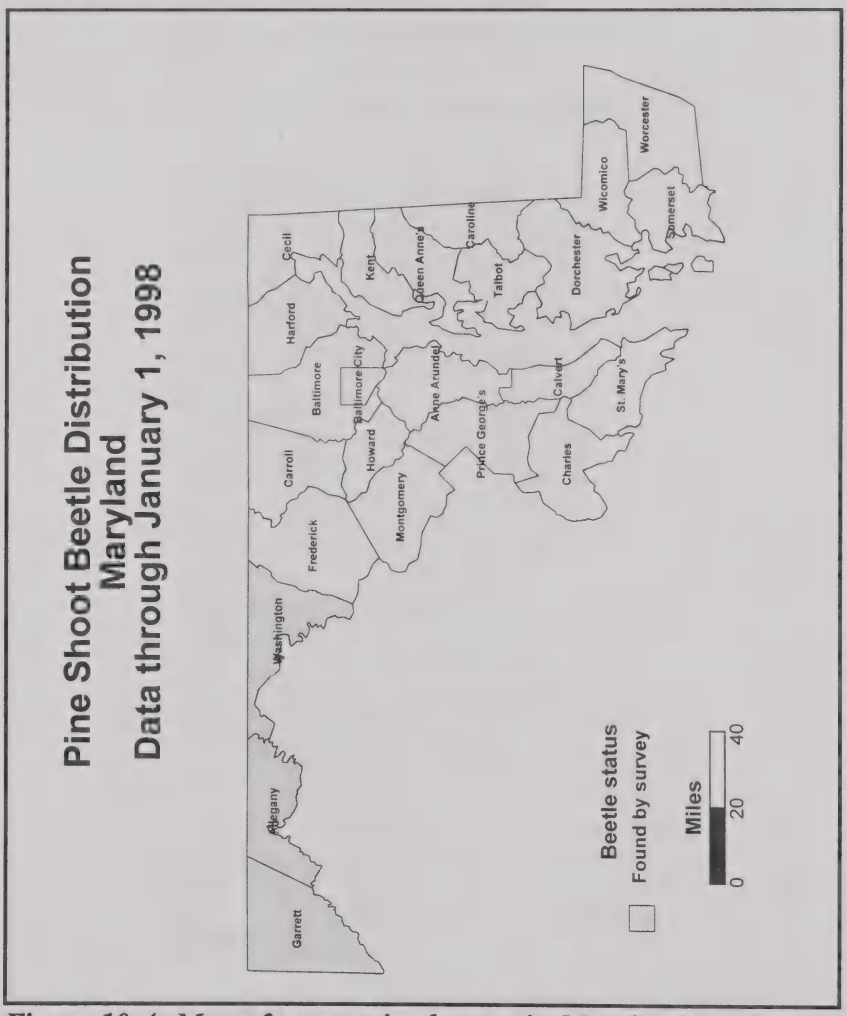


Figure 10-4: Map of quarantined areas in Maryland as of 01/01/98.

Maps of Quarantined Areas (continued)

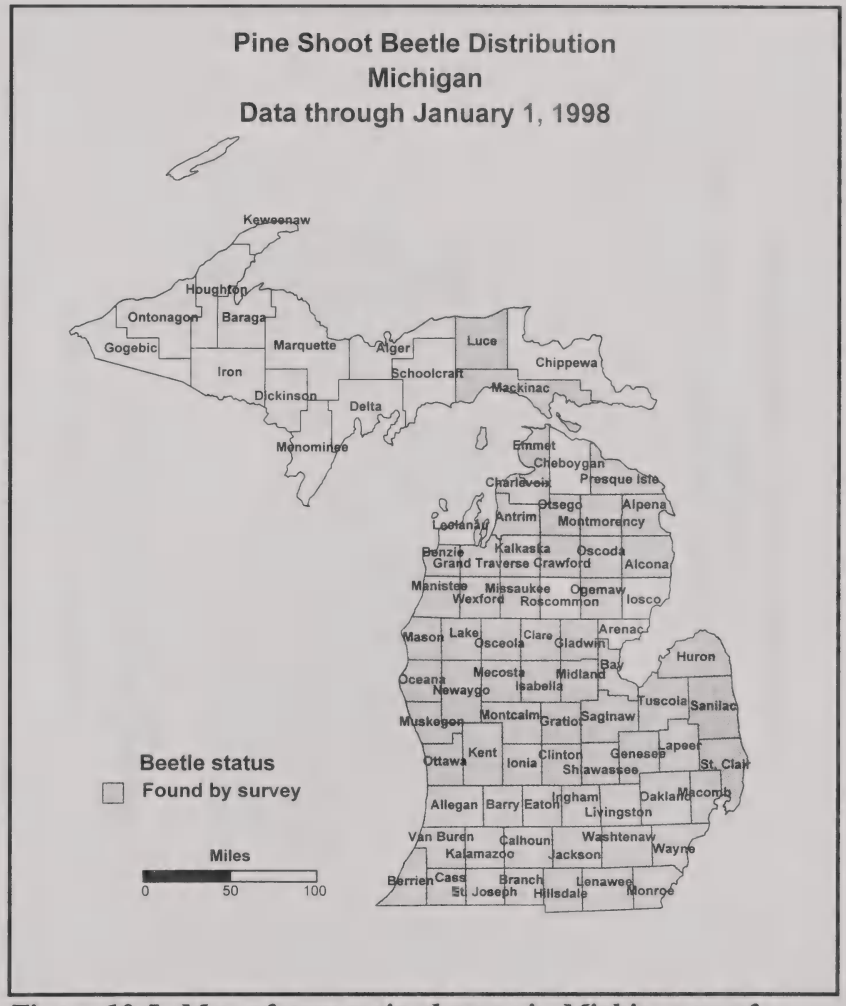


Figure 10-5: Map of quarantined areas in Michigan as of 01/01/98.

Maps of Quarantined Areas (continued)

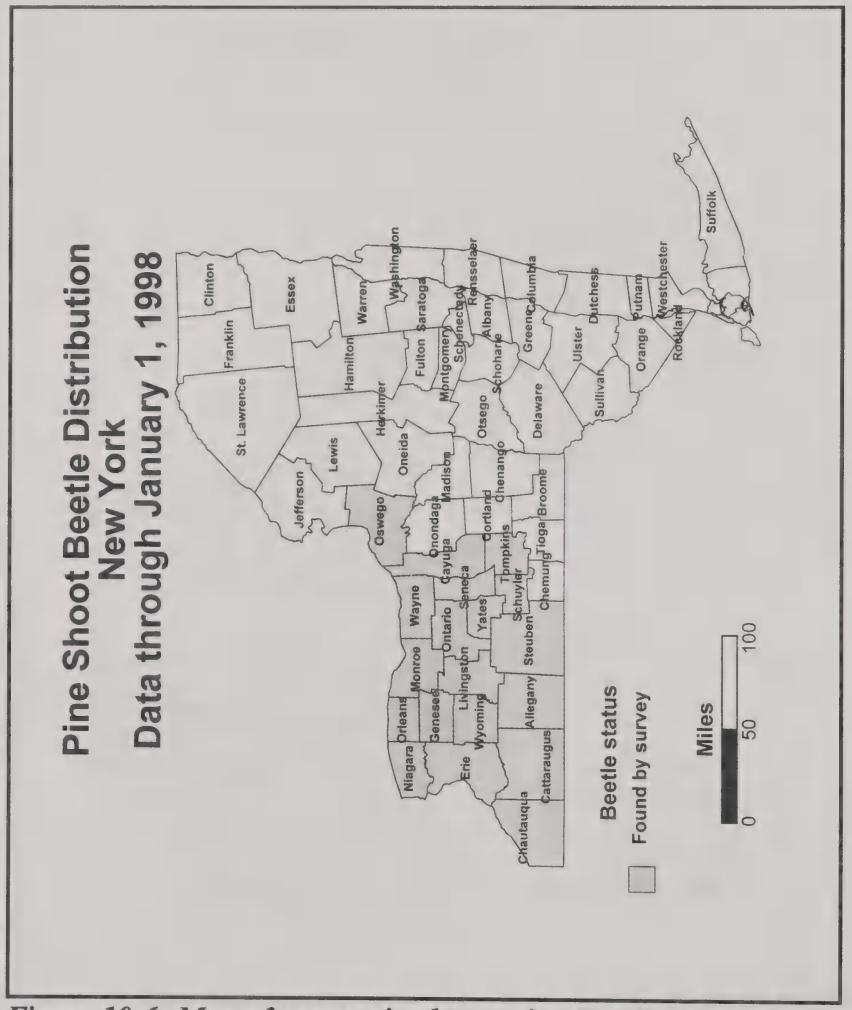


Figure 10-6: Map of quarantined areas in New York as of 01/01/98.

Maps of Quarantined Areas (continued)

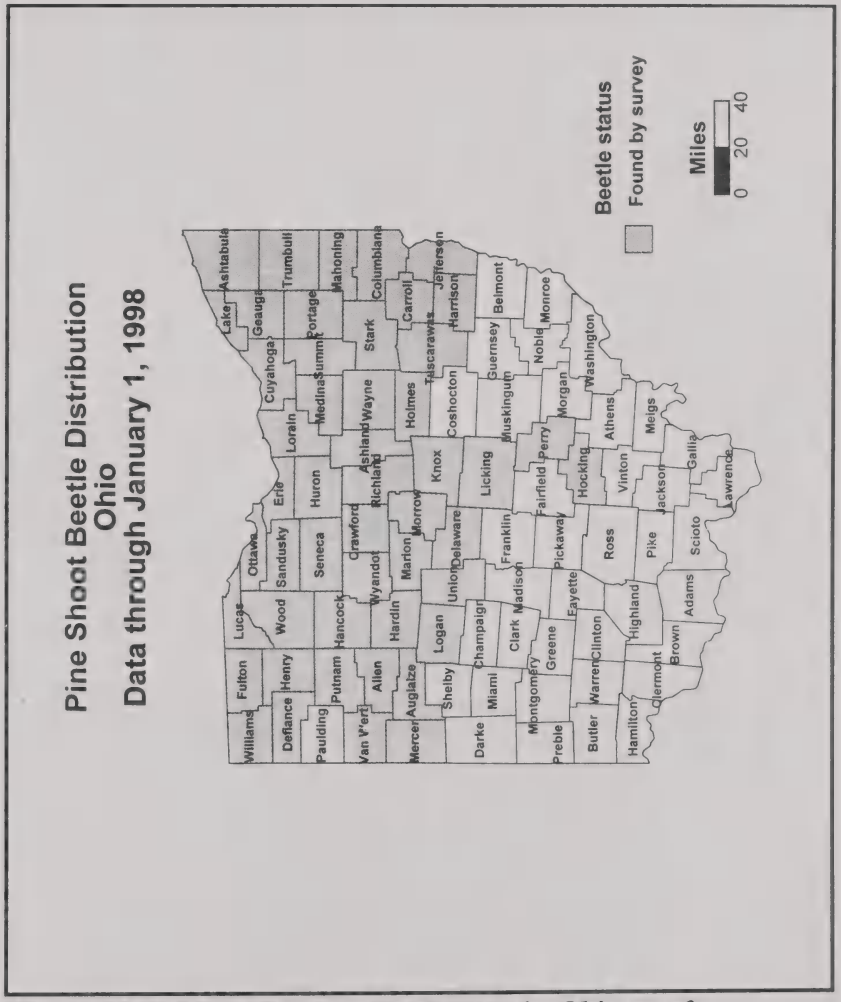


Figure 10-7: Map of quarantined areas in Ohio as of 01/01/98.

Maps of Quarantined Areas (continued)

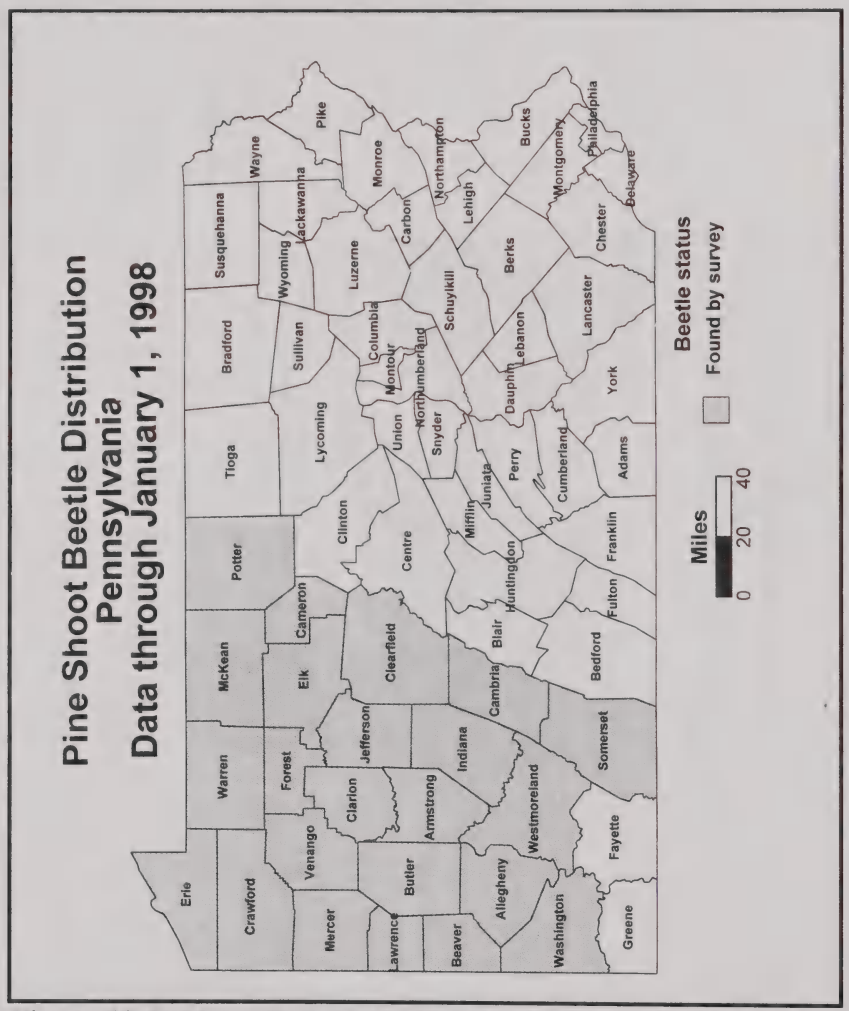


Figure 10-8: Map of quarantined areas in Pennsylvania as of 01/01/98.

Maps of Quarantined Areas (continued)

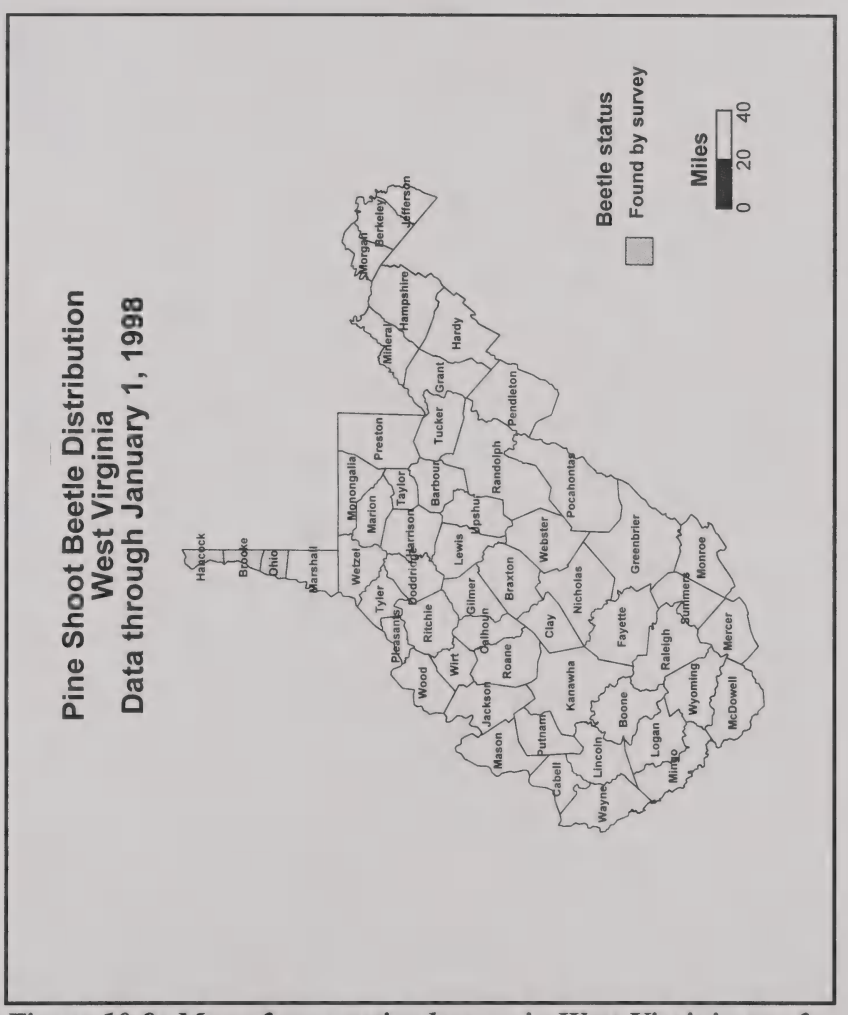


Figure 10-9: Map of quarantined areas in West Virginia as of 01/01/98.

Maps of Quarantined Areas (continued)

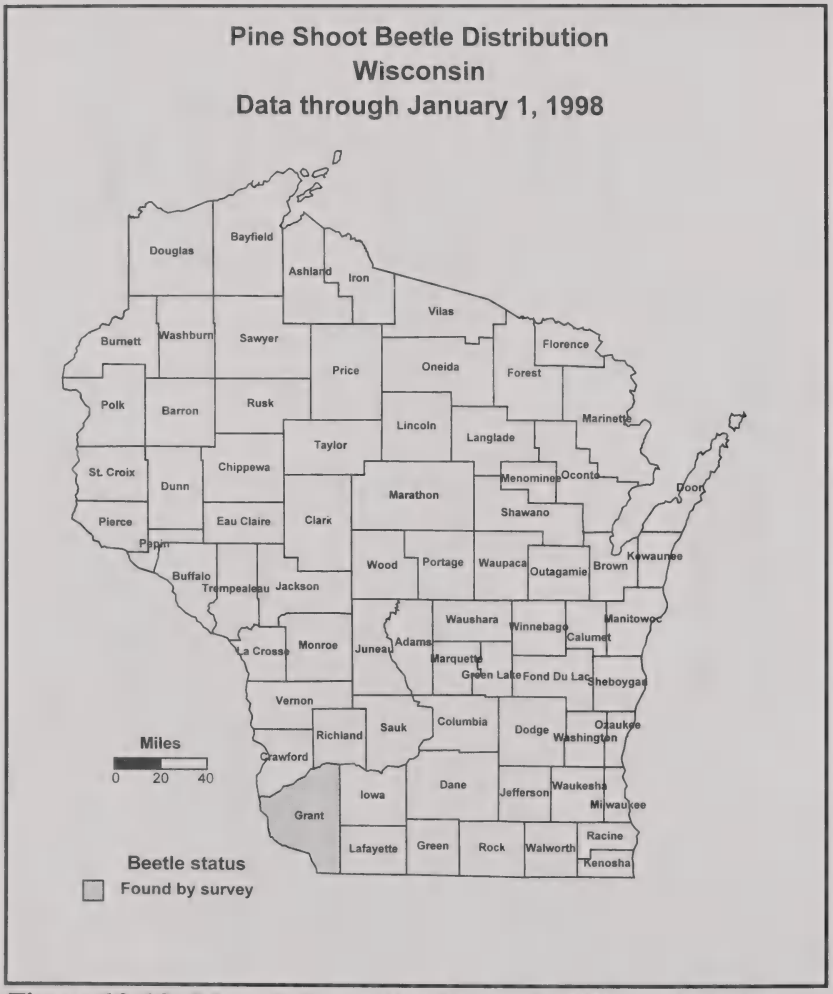


Figure 10-10: Map of quarantined areas in Wisconsin as of 01/01/98.

APPENDIX 8
How to Complete Limited Permits (PPQ Form 530)

Purpose:

Limited Permits (PPQ Form 530) authorize the movement of non-certified articles to specified destinations for further handling, processing, treating, or utilizing. See ***Figure 11-1***.

Introduction:

Issue a Limited Permit for the following articles as they relate to the Pine Shoot Beetle Regulation.

1. Pine logs or lumber with bark and tree stumps, originating in quarantined areas that are moving to a specified preapproved destination in a non-quarantined area for further handling, processing, utilizing, or treating.

2. Pine Christmas trees free from the pine shoot beetle that originate in a quarantined area destined to non-quarantined areas.

Instructions:

Use a ball point pen to complete a Limited Permit. All the information entered on the Limited Permit must be legible and accurate. Spell out correctly all names of counties, cities, and towns. If you make a minor error, cross it out and initial it. If you make a major error, destroy the Permit and make out another.

For a shipment with multiple destinations, issue one Limited Permit per consignee. This action will facilitate the monitoring of the disposal order for unsold pine Christmas trees, and the approved processing of pine logs or lumber.

Instructions (continued)

The following numbered sentences correspond with the numbered blocks on a Limited Permit.

1. Date Issued--Enter the date you issue the Limited Permit.

2. Void After--Enter a date which allows sufficient but not extensive time for the shipment to reach its destination.

3. Name of Consignor--Enter name of shipper at origin.

4. Shipping Point--Enter the City and State of origin.

5. Name and Address of Consignee--Enter name and address of company receiving the regulated articles.

6. Vehicle License No. & State--Trailer or tractor number.

7. R. R. Car Initials & No.--Self explanatory and line out the block if it is not applicable.

8. Description--

   a. Quantity--Enter quantity of regulated articles in the shipment.

   b. Article--Enter specific regulated articles in the shipment.

Instructions (continued)

c. Remarks--For shipments of pine Christmas trees, write the following statement (disposal order) or stamp the statement on all three copies:

"All trees that remain unsold as of December 25 must be destroyed by burning or chipping or must be fumigated prior to January 1."

9. Signature of Issuing Officer/Cooperator--Sign the Limited Permit and distribute as directed in **Table 11-1** on page 11.5.

10. Date Received--The PPQ port director in the State of destination will either enter the date they check the shipment and find it in accordance with the Permit, or enter the date they receive the yellow copy of the Permit and enter "not checked."

NOTE: Shipments of logs and lumber moving to destinations for specified handling, processing, utilizing, or treating should be monitored to assure that shipments are in compliance with regulations.

NOTE: Shipments of cut, pine Christmas trees should be monitored by State cooperators in the State of destination to ensure that the responsible party disposes of the unsold trees by burning, chipping, or fumigating prior to January 1.

11. Signature of Destination Officer--Leave blank for the PPQ port director to sign in the State of destination.

Instructions (continued)

No. B-379001

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE

LIMITED PERMIT

This permit must be surrendered to the consignee at destination of shipment.

This permit authorizes the movement of the **NONCERTIFIED** articles described below to a specified destination for limited handling, utilization, or processing, or for treatment. The movement of such articles is regulated by Federal or State cooperative domestic plant quarantines.

1. DATE ISSUED	2. VOID AFTER

3. NAME OF CONSIGNOR

4. SHIPPING POINT

5. NAME AND ADDRESS OF CONSIGNEE

6. VEHICLE LICENSE NO. & STATE	7. R.R. CAR INITIALS

8. DESCRIPTION

A. Quantity	B. Article	C. Remarks

9. SIGNATURE OF ISSUING OFFICER

ENDORSEMENT

The above described shipment was received by the designated consignee, and was handled in the manner approved under the provisions of all applicable Federal or State cooperative domestic plant quarantines.

10. DATE RECEIVED

11. SIGNATURE OF DESTINATION OFFICER

PENALTY FOR MISUSE OR ALTERATION (7 USC 163)

PPQ FORM 530 (SEP 84) CONSIGNEE'S COPY

Figure 11-1: Sample of a Limited Permit (PPQ Form 530)

Distribution:

Distribute the copies of the Limited Permit using **Table 11-1**.

Table 11-1: Distribute the Limited Permit (PPQ Form 530)

If you are a:	And the copy is:	Then:
PPQ Officer or State cooperator	Pink (Consignee's copy)	ATTACH to the waybill, invoice, or other shipping documents accompanying the shipment
	Yellow (Destination officer's copy)	FORWARD to the PPQ SPHD or port director in the State of origin
	White (Issuing officer's copy)	RETAIN in the book
Person under Compliance Agreement (only for the movement of pine Christmas trees, or logs and lumber)	Pink (Consignee's copy)	ATTACH to the waybill, invoice, or other shipping documents accompanying the shipment
	Yellow (Destination officer's copy)	SEND to the PPQ SPHD or port director in the State of origin. For Christmas trees, within 7 days after shipment; for logs and lumber, within 1 day.
	White (Issuing officer's copy)	RETAIN in the book until a PPQ Officer, port director, SPHD, or State cooperator requests the book of Limited Permits
PPQ port director or SPHD in the State of origin	Yellow	SEND to the PPQ port director or SPHD in the State of destination
PPQ port director or SPHD in the State of destination (only for the movement of pine Christmas trees)	A photocopy	PROVIDE to the State cooperator for purposes of monitoring the disposal order

APPENDIX 9

How to Issue and Monitor Compliance Agreements (PPQ Form 519)

Purpose:

Compliance Agreements (PPQ Form 519) provide a signed, written agreement with owners, operators, growers, shippers, and processors to indicate their understanding of methods, conditions, and procedures necessary for compliance with regulations. See *Figure 12-1* on page 12.5.

Introduction:

Issue a Compliance Agreement for regulated articles as they relate to the Pine Shoot Beetle Regulation.

1. For premises (farms and plantations) of Christmas trees originating in quarantined areas which have been found to be free of the pine shoot beetle. The Compliance Agreement allows a person operating under it to issue Limited Permits for the movement of the Christmas trees.

2. For growers/shippers of pine nursery stock and greenhouse-grown pine such as bonsai originating in quarantined areas which have been found to be free of the pine shoot beetle based on inspection. The Compliance Agreement allows a person operating under it to issue Certificates for the movement of pine nursery stock and greenhouse-grown pines.

3. For specified destinations handling, processing, utilizing, or treating (fumigation) pine logs or lumber with bark and tree stumps originating in quarantined areas. The Compliance Agreement allows a person operating under it to issue Limited Permits for the movement of the pine logs, lumber, or stumps.

Introduction (continued)

4. For specified destinations preapproved to handle, process, or utilize pine logs or lumber with bark or tree stumps originating in quarantined areas. The Compliance Agreement allows a person operating under it to handle, process, or utilize the logs, lumber, or stumps without USDA or State supervision. **NOTE:** All logs, lumber, or stumps requiring treatment (fumigation) **will** require USDA supervision.

Instructions:

Complete a Compliance Agreement using a model provided by the Region. Refer to the sample models at the end of this section beginning on page 12.7.

Any special conditions should be specified in a remarks section or an addendum to the Compliance Agreement. For example, detailing specific locations of fields which are covered and not covered by the Compliance Agreement.

For Christmas trees, at the end of the shipping season, PPQ port directors should require the return of all unused Limited Permits or stamps from persons operating under a Compliance Agreement.

The following numbered sentences correspond with the numbered blocks on a Compliance Agreement.

1. Name and Mailing Address of Person or Firm--Enter the name and address of the designated holder of the Compliance Agreement.

2. Location--Enter a brief description of the specific property(ies) for which the Agreement is signed.

Instructions (continued)

3. Regulated Article(s)--Enter the specific regulated article to which the Agreement applies. For example, pine Christmas trees; pine seedlings less than 36 inches tall; greenhouse-grown pine; or pine logs or lumber.

4. Applicable Federal Quarantine(s) or Regulations--Enter "Federal Plant Pest Act, sections 105 and 107; Plant Quarantine Act, section 10; 7CFR Part 301.50, Pine Shoot Beetle." Additionally, if State cooperators are helping to govern the movement of the regulated articles, enter the applicable State laws in this Block.

5. Note that there is no Block 5 on the form.

6. I/We agree to the following:--Outline the stipulations which apply to the holder for each quarantine or regulation affecting the firm. Refer to the sample models at the end of this section.

Make clear to the firm that the stipulations in the Compliance Agreement do not preclude compliance with other sections of a quarantine or regulation.

If the space in Block 6 is inadequate for listing the stipulations, then enter "See attached sheets."

7. Signature--Have a responsible official of the firm sign the Compliance Agreement.

8. Title--Enter the title of the responsible official who signed the agreement representing the firm.

9. Date Signed--Enter the date signed.

Instructions (continued)

10. Agreement No.--Assign a number to the Compliance Agreement.

11. Date of Agreement--Enter the same date as is in Block 9.

12. PPQ Official--Enter your name and title, or the name and title of the port director who will be signing the Agreement.

13. Address--Enter the address of your work unit/office, or the address of your port director.

14. Signature--Sign the Compliance Agreement, or have your port director sign it.

15. State Agency Official--Complete this Block only when State cooperators will be helping to enforce Federal quarantines.

16. Address--Complete this Block only when State cooperators will be helping to enforce Federal quarantines.

17. Signature--Sign only when State cooperators will be helping to enforce Federal quarantines.

Instructions (continued)

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE PROGRAMS

COMPLIANCE AGREEMENT

1. NAME AND MAILING ADDRESS OF PERSON OR FIRM	2. LOCATION

3. REGULATED ARTICLE(S)

4. APPLICABLE FEDERAL QUARANTINE(S) OR REGULATIONS

6. *I/We agree to the following:*

7. SIGNATURE	8. TITLE	9. DATE SIGNED

The affixing of the signatures below will validate this agreement which shall remain in effect until cancelled, but may be revised as necessary or revoked for noncompliance.

10. AGREEMENT NO.

11. DATE OF AGREEMENT

12. PPQ OFFICIAL *(Name and Title)*	13. ADDRESS
14. SIGNATURE	
15. STATE AGENCY OFFICIAL *(Name and Title)*	16. ADDRESS
17. SIGNATURE	

PPQ FORM 519
AUG. 1977

REPLACES PPQ 274, 519, 560, AND AQI 83, WHICH ARE OBSOLETE

Figure 12-1: Sample of a Compliance Agreement (PPQ Form 519)

Distribution:

1. Distribute the original copy of the Compliance Agreement to the person who signed it for the firm.

2. Distribute photocopies of the Compliance Agreement to the following:

a. The PPQ official who signed the Agreement

b. The State cooperator who signed the Agreement (if they are helping to enforce Federal quarantines)

c. The PPQ port director in the State of destination if the Compliance Agreement was issued to firms at specified destinations for treating, handling, utilizing, or processing logs or lumber with bark.

Monitoring Compliance Agreements:

State of Origin:

In the State of origin, the PPQ port director or State cooperator should monitor holders of Compliance Agreements on an" as needed" basis.

State of Destination:

For Christmas trees, monitor the disposal requirement by ensuring the responsible party disposes of the unsold Christmas trees by one of the following methods prior to January 1: burning, chipping, or fumigating with methyl bromide.

Monitoring Compliance Agreements (continued)

Monitor on an as needed basis, those establishments that handle, utilize, or process logs, lumber, and stumps.

Canceling Compliance Agreements:

If the holder of a compliance agreement does not comply with the conditions, take action to cancel the agreement.

1. Notify the holder either orally or in writing of the reason for the cancellation. If you orally notify the holder, the cancellation and the reasons for cancellation should be confirmed in writing as promptly as circumstances allow.

2. Provide an opportunity for a hearing to resolve any conflicts. An appeal must be in writing and received by the Deputy Administrator's office within 10 days after the holder receives written notification of the cancellation.

Examples:

On the following pages are examples outlining the stipulations entered in Block 6 of compliance agreements (PPQ Form 519) for the following regulated articles. These examples are of stipulations that have been established through cooperative negotiations among PPQ, the State, and the company being regulated. The stipulations may be modified to fit specific situations.

- Pine nursery stock
- Cut pine Christmas trees
- Logs, lumber, and stumps of pine
- Holding yards approved to handle, utilize, or process logs, lumber, and stumps
- Receiving mills approved to handle, utilize, or process logs, lumber, and stumps.

Example of a Compliance Agreement for Pine Nursery Stock:

All regulated articles shipped from pine shoot beetle quarantined areas destined to non-quarantined areas must be accompanied by a Federal Certificate. Federal Certificates will be used only for shipments that meet the following conditions:

The regulated article is eligible for unrestricted interstate/intrastate movement under all other Federal domestic plant quarantines and regulations applicable to the regulated articles.

All regulated articles must be inspected by an officer/cooperator. Interstate/intrastate movement of pine nursery stock moving under a Certificate is permitted if the officer/cooperator determines that;

Pine nursery stock is pine seedlings less than 36 inches tall with a trunk diameter of 1 inch or less at soil level--the officer/cooperator will perform a general inspection and based on negative inspection results will issue a Certificate. OR,

Pine nursery stock is greenhouse-grown pine, such as bonsai--the officer/cooperator will perform a general inspection and verify that the greenhouse is screened to prevent entry of the pine shoot beetle. Based on negative inspection results and verification that the greenhouse is screened, the officer/cooperator will issue a Certificate. OR,

Example of a Compliance Agreement for Pine Nursery Stock (continued)

Pine nursery stock is of a pine other than seedlings and greenhouse-grown pine as described in the previous paragraphs--the officer/cooperator will inspect 100 percent of the nursery stock and based on negative inspection results will issue a Certificate. OR, if evidence of infestation by the pine shoot beetle is detected in any one of the trees being sampled, then the officer/cooperator must reject the infested trees and issue a Certificate for the pine nursery stock found free from the pine shoot beetle. Evidence of infestation would include a clean gallery and/or the pine shoot beetle.

AND:

The regulated article will be moved through the quarantined area in an enclosed vehicle during May through October when the ambient air temperature is above 50°F (10°C).

The person or firm is responsible for ensuring that the Certificates left in their possession will be protected from loss, theft, or unauthorized use.

Example of a Compliance Agreement for Pine Nursery Stock
(continued)

This Compliance Agreement signed on _____
allows the movement of pine nursery stock from the following properties, farms, plantations, or nurseries:

_____ _____

_____ _____

_____ _____

_____ _____

For persons or firms operating under a Compliance Agreement, distribution of copies of the Certificate is as follows:

YELLOW COPY (Consignee's copy)--Attach to the waybill, invoice, or other shipping document accompanying the shipment.

GREEN COPY--Forward to the port director in the State of origin within 7 days after shipment.

WHITE COPY (Issuing Officer's Copy)--Retain in the book until an officer/cooperator requests the book of Certificates.

For a shipment with multiple destinations, issue one Certificate per consignee.

Example of a Compliance Agreement for Pine Nursery Stock (continued)

A Certificate required for the interstate/intrastate movement of pine nursery stock, must be attached to one of the following:

1. Consignee's copy of the waybill
2. Consignee's copy of the invoice
3. Consignee's copy of other shipping documents

The Certificate must be furnished by the carrier to the consignee at destination.

Any person or firm who desires to move pine nursery stock interstate/intrastate and requires a Certificate must notify an officer/cooperator at least 48 hours in advance of the desired movement. Regulated articles must be assembled at the place and in the manner the officer/cooperator designates.

Any Certificate or Compliance Agreement may be canceled or revoked by the officer/cooperator if they determine that the holder of the Certificate or Compliance Agreement has not complied with all of the conditions.

Certificates must be returned to the officer/cooperator upon request.

Violation of these Federal regulations can result in a criminal penalty of up to a $5,000 fine, a year in jail, or both, or a civil penalty and a fine of up to $1,000 per violation.

Example of a Compliance Agreement for Cut Pine Christmas Trees:

All regulated articles shipped from pine shoot beetle quarantine areas destined to non-quarantined areas must be accompanied by a Federal Limited Permit or a Federal Certificate. Limited Permits and Certificates will be used only for shipments that meet the following conditions:

> The regulated article is eligible for unrestricted interstate/intrastate movement under all other Federal domestic plant quarantines and regulations applicable to the regulated articles.
>
> All regulated articles must be inspected by an officer/cooperator for presence of the pine shoot beetle. If evidence of infestation of the pine shoot beetle is detected in any one of the trees being sampled, then the entire shipment must be either rejected or treated with a methyl bromide fumigation. (See **Table 3-5** on page 3.12 for the fumigation treatments for Pine Christmas Trees.) Evidence of infestation would include a clean gallery and/or the pine shoot beetle.

The growers/shippers are responsible for ensuring that the Certificates left in their possession will be protected from loss, theft, or unauthorized use.

Example of a Compliance Agreement for Cut Pine Christmas Trees (continued)

Negative Inspection--Interstate/intrastate movement of pine Christmas trees moving under a Limited Permit is permitted if the officer/cooperator makes a pest risk determination on the basis of an inspection and finds no evidence of pine shoot beetle damage or pine shoot beetles.

The number of pine Christmas trees sampled for inspection will be determined by the officer/cooperator according to the size and type of shipment. The pine shoot beetle sampling guidelines will be used.

A person or firm operating under a Compliance Agreement may issue Limited Permits for the interstate/intrastate movement of pine Christmas trees.

This Compliance Agreement signed on _____ allows the movement of pine Christmas trees from the following properties, farms, or plantations.

_____ _____

_____ _____

_____ _____

All Limited Permits must state "All trees that remain unsold as of December 25 must be destroyed prior to January 1 by burning, chipping, or fumigation."

Example of a Compliance Agreement for Cut Pine Christmas Trees (continued)

For persons or firms operating under a Compliance Agreement, distribution of copies of the Limited Permit is as follows:

> PINK COPY (Consignee's Copy)--Attach to the waybill, invoice, or other shipping documents accompanying the shipment.
>
> YELLOW COPY (Destination Officer's Copy)--Forward to the PPQ port director in the State of origin within 7 days after shipment.
>
> WHITE COPY (Issuing Officer's Copy)--Retain in the book until an officer/cooperator requests the book of Limited Permits.

For a shipment with multiple destinations, issue one Limited Permit per consignee.

The person or firm is responsible for ensuring that the Limited Permits left in their possession will be protected from loss, theft, or unauthorized use.

A Certificate or Limited Permit required for the interstate/intrastate movement of pine Christmas trees, must be attached at all times during movement to one of the following:

1. Consignee's copy of the waybill
2. Consignee's copy of the invoice
3. Consignee's copy of other shipping documents

The Certificate or Limited Permit must be furnished by the carrier to the consignee at destination.

Example of a Compliance Agreement for Cut Pine Christmas Trees (continued)

Any person or firm who desires to move pine Christmas trees out of the quarantined area, interstate/intrastate and requires a Certificate or Limited Permit must notify an officer/cooperator at least 48 hours in advance of the desired movement. Regulated articles must be assembled at the place and in the manner the officer/cooperator designates.

Any Limited Permit, Certificate, or Compliance Agreement may be canceled or revoked by officers/cooperators if they determine that the holder of the Limited Permit, Certificate, or Compliance Agreement has not complied with all of the conditions.

Limited Permits and Certificates must be returned to officers/cooperators upon request.

Violation of these Federal regulations can result in a criminal penalty of up to a $5,000 fine, a year in jail, or both, or a civil penalty and a fine of up to $1,000 per violation.

Example of a Compliance Agreement for Logs, Lumber, and Stumps of Pine

All regulated articles shipped from pine shoot beetle quarantine areas destined to non-quarantined areas must be accompanied by a Federal Certificate or a Federal Limited Permit. Limited Permits and Certificates will be used only for shipments that meet the following conditions:

The regulated article is eligible for unrestricted movement under all other Federal domestic plant quarantines and regulations applicable to the regulated articles.

Example of a Compliance Agreement for Logs, Lumber, and Stumps of Pine (continued)

A Certificate will be issued for a regulated article that is to be moved interstate/intrastate and has been treated under the supervision of an officer/cooperator in accordance with an approved USDA treatment. The approved treatment for logs, lumber, and stumps is fumigation with methyl bromide.

A Limited Permit will be issued for a regulated article that is to be moved interstate/intrastate to a specified destination for further treatment, handling, processing, or utilization. The destination and other conditions will be listed on the Limited Permit.

A person or firm operating under a Compliance Agreement may issue Limited Permits for the interstate/intrastate movement of logs, lumber, and stumps.

The person or firm is responsible for ensuring that the Limited Permits and Certificates left in their possession will be protected from loss, theft, or unauthorized use.

This Compliance Agreement signed on _____ allows the movement of logs, lumber, and stumps from the following properties, yards, or mills:

_____ _____

_____ _____

_____ _____

_____ _____

Example of a Compliance Agreement for Logs, Lumber, and Stumps of Pine (continued)

For persons or firms operating under a Compliance Agreement, distribution of copies of the Limited Permit is as follows:

> PINK COPY (Consignee's Copy)--Attach to the waybill, invoice, or other shipping documents accompanying the shipment.
>
> YELLOW COPY (Destination Officer's Copy)--Forward to the PPQ port director in the State of origin within 1 day after shipment.
>
> WHITE COPY (Issuing Officer's Copy)--Retain in the book until an officer/cooperator requests the book of Limited Permits.

For a shipment with multiple destinations, issue one Limited Permit per consignee.

A Limited Permit or Certificate required for the interstate/intrastate movement of logs, lumber, and stumps must be attached at all times during movement to one of the following:

1. Consignee's copy of the waybill
2. Consignee's copy of the invoice
3. Consignee's copy of other shipping documents

The Limited Permit or Certificate must be furnished by the carrier to the consignee at destination.

Example of a Compliance Agreement for Logs, Lumber, and Stumps of Pine (continued)

Any person or firm who desires to move logs, lumber, or stumps interstate/intrastate and requires a Certificate or Limited Permit must notify an officer/cooperator at least 48 hours in advance of the desired movement. Regulated articles must be assembled at the place and in the manner the officer/cooperator designates.

Any Limited Permit, Certificate, or Compliance Agreement may be canceled or revoked by officers/cooperators if they determine that the holder of the Limited Permit, Certificate, or Compliance Agreement has not complied with all of the conditions.

Limited Permits and Certificates must be returned to the officer/cooperator upon request.

Violation of these Federal regulations can result in a criminal penalty of up to a $5,000 fine, a year in jail, or both, or a civil penalty and a fine of up to $1,000 per violation.

Example of a Compliance Agreement for Holding Yards Approved to Handle, Utilize, or Process Logs, Lumber and Stumps

All regulated articles shipped from pine shoot beetle quarantine areas destined to non-quarantined areas must be accompanied by a Federal Limited Permit (PPQ Form 530). Limited Permits will be used only for shipments that meet the following conditions:

1. The limited permit will only apply to the certification of *Pinus* spp. regulated logs, lumber, and stumps, as it applies to the pine shoot beetle quarantine. The use of the limited permit does not apply to certification under the gypsy moth quarantine.

2. A limited permit will be issued for a regulated article that is to be moved interstate/intrastate to a specified destination for further treatment, handling processing, or utilization. The destination and other conditions will be listed on the Limited Permit. The following conditions for logs, lumber, and stumps are:

   a. The regulated article is shipped during July 1 through December 31, or during January 1 through April when temperatures are below 53°F.

   b. All regulated articles received into "*name and address of certified holding yard*", during the approved shipping period, must be shipped under limited permit for processing at "*name and address of certified receiving mill*" by April 1 each year.

   c. No regulated article may be received into or shipped from *"name and address of certified holding yard"* during the period of April 1 through June 30.

Example of a Compliance Agreement for Holding Yards Approved to Handle, Utilize, or Process Logs, Lumber and Stumps (continued)

3. The regulated article is to be moved through non-quarantined areas without stopping except for refueling or for traffic conditions such as traffic lights and stop signs.

4. Upon receipt by the receiving mill of the regulated article, the receiving mill must, within 48 hours, utilize the regulated articles by the following methods:

a. The regulated articles will be stored only in the designated yard area at "*name and address of certified receiving mill*". These regulated articles will be processed within 48 hours of delivery by "*specify method of utilization.*"

b. Regulated residue remaining after processing will be fully utilized within 48 hours by "*specify method of utilization.*"

5. The Cooperator will allow access to holding or processing areas to the Federal of State Officers for verification that the regulated articles are being/were properly handled, processed, or utilized and to service detection traps placed on the premises. Access will be granted upon notification of the yard manager of their arrival. (Notification is being required only to assure that safety regulations/requirements are met.)

6. The Cooperator agrees to assist USDA, APHIS, PPQ with the implementation of PSB compliance agreement by:

Example of a Compliance Agreement for Holding Yards Approved to Handle, Utilize, or Process Logs, Lumber and Stumps (continued)

a. Their forester accompany/direct Federal Officers/State cooperators on/to job site visits of their suppliers from within and around the regulated areas;

b. Disseminating quarantine maps and information to their suppliers;

c. Initiating compliance agreements with some of their suppliers upon USDA's behalf.

Supplier lists will be confidential and be used only for the purpose of contacting and initiating compliance agreements.

Information for a Compliance Agreement--A person or firm operating under a compliance agreement may issue Limited Permits for the interstate/intrastate movement of logs, lumber, and stumps.

The person or firm is responsible for ensuring that the Limited Permits and Certificates left in their possession will be protected from loss, theft, or unauthorized use. Reproduction of the Certificates or Limited Permits is prohibited unless authorized by the State Plant Health Director in writing.

This Compliance Agreement signed on_____ allows the movement of logs, lumber, and stumps from the following properties, yards, or mills:

_____ _____

_____ _____

Example of a Compliance Agreement for Holding Yards Approved to Handle, Utilize, or Process Logs, Lumber and Stumps (continued)

For persons or firms operating under a Compliance Agreement, distribution of copies of the Limited Permit are as follows:

> PINK COPY (consignee's copy)—Attach to the waybill, invoice, or other shipping documents accompanying the shipment.
>
> YELLOW COPY (destination Officer's copy)—Forward to the PPQ State Plant Health Director (SPHD) in the State of origin within 1 day after shipment.
>
> WHITE COPY (issuing Officer's copy)—Retain in book until an officer/cooperator requests the book of Limited Permits.

For a shipment with multiple destinations, issue one Limited Permit per consignee.

A Limited Permit or Certificate required for the movement of logs, lumber, and stumps must be attached at all times during movement to one of the following:

1. Consignee's copy of the waybill
2. Consignee's copy of the invoice
3. Consignee's copy of other shipping documents

The Limited Permit or Certificate must be surrendered by the carrier to the consignee at destination.

Example of a Compliance Agreement for Holding Yards Approved to Handle, Utilize, or Process Logs, Lumber and Stumps (continued)

Any Limited Permit, Certificate, or Compliance Agreement may be canceled or revoked by officers/cooperators if they determine that the holder of the Limited Permit, Certificate, or Compliance Agreement has not complied with all the conditions of this agreement.

Limited Permits and Certificates are and remain the property of the U.S. Government and must be returned to the officer/cooperator upon request.

Violation of these Federal regulations can result in a criminal penalty of up to a $5,000 fine, a year in jail, or both, or a civil penalty and a fine of up to $1,000 per violation.

Example of a Compliance Agreement for Receiving Mills Approved to Handle, Utilize, or Process Logs, Lumber and Stumps

All regulated articles shipped from pine shoot beetle quarantine areas destined to non-quarantined areas must be accompanied by a Federal Limited Permit (PPQ Form 530). Limited Permits will be used only for shipments that meet the following conditions:

1. The limited permit will only apply to the certification of *Pinus* spp. regulated logs, lumber, and stumps, as it applies to the pine shoot beetle quarantine. The use of the limited permit does not apply to certification under the gypsy moth quarantine.

Example of a Compliance Agreement for Receiving Mills Approved to Handle, Utilize, or Process Logs, Lumber and Stumps (continued)

2. Interstate/intrastate of the regulated articles moving under a Limited Permit is permitted if the officer/cooperator determines that:

a. The regulated article is shipped during July 1 through December 31, or during January 1 through April when temperatures are below 53°F.

b. All regulated articles received into "*name and address of certified receiving mill*", during the approved shipping period, must be shipped under limited permit for processing at "*name and address of certified receiving mill*" by April 1 each year.

c. No regulated article may be received into or shipped from "*name and address of certified receiving mill*" during the period of April 1 through June 30.

d. The cooperator agrees to maintain proper sanitation at the receiving mill by isolating all regulated bark, billets, and debris that accumulates during the process of loading/unloading and handling of the regulated articles. The bark and debris is to be buried on site at a depth of 3 feet or more or returned to the regulated area by April 1 of each year. The billets will be fully utilized within 48 hours by "specify method of utilization."

e. Upon receipt of the regulated article, the receiving mill must, within 48 hours, fully utilize the regulated articles by:

Example of a Compliance Agreement for Receiving Mills Approved to Handle, Utilize, or Process Logs, Lumber and Stumps (continued)

1) The regulated articles will be stored only in the designated yard area at "name and address of certified receiving mill." These regulated articles will be processed within 48 hours of delivery by "specify method of utilization."

2) Regulated residue remaining after processing will be fully utilized within 48 hours by "specify method of utilization."

3. The regulated article is to be moved through non-quarantined areas without stopping except for refueling or for traffic conditions such as traffic lights and stop signs.

4. The Cooperator will allow access to holding or processing areas to the Federal or State officers for verification that the regulated articles are being/were properly handled, processed, or utilized and to service detection traps placed on the premises. Access will be granted upon notification of the yard manager of their arrival. (Notification is being required only to assure that safety regulations/requirements are met.)

5. The Cooperator agrees to assist USDA, APHIS, PPQ with the implementation of PSB compliance agreements by:

a. Their forester accompany/direct Federal officers/State cooperators on/to job site visits of their suppliers from within and around the regulated area;

Example of a Compliance Agreement for Receiving Mills Approved to Handle, Utilize, or Process Logs, Lumber and Stumps (continued)

b. Disseminating quarantine maps and information to their suppliers;

c. Initiating compliance agreements with some of their suppliers upon USDA's behalf.

Supplier lists will be confidential and be used only for the purpose of contacting and initiating compliance agreements.

Information for a Compliance Agreement--A person or firm operating under a compliance agreement may issue Limited Permits for the interstate/intrastate movement of logs, lumber, and stumps.

The person or firm is responsible for ensuring that the Limited Permits and Certificates left in their possession will be protected from loss, theft, or unauthorized use. Reproduction of the Certificates or Limited Permits is prohibited unless authorized by the State Plant Health Director in writing.

This Compliance Agreement signed on_____ allows the movement of logs, lumber, and stumps from the following properties, yards, or mills:

_____ _____

_____ _____

Example of a Compliance Agreement for Receiving Mills Approved to Handle, Utilize, or Process Logs, Lumber and Stumps (continued)

For persons or firms operating under a Compliance Agreement, distribution of copies of the Limited Permit are as follows:

PINK COPY (consignee's copy)—Attach to the waybill, invoice, or other shipping documents accompanying the shipment.

YELLOW COPY (destination Officer's copy)—Forward to the PPQ State Plant Health Director (SPHD) in the State of origin within 1 day after shipment.

WHITE COPY (issuing Officer's copy)—Retain in book until an officer/cooperator requests the book of Limited Permits.

For a shipment with multiple destinations, issue one Limited Permit per consignee.

A Limited Permit or Certificate required for the movement of logs, lumber, and stumps must be attached at all times during movement to one of the following:

1. Consignee's copy of the waybill
2. Consignee's copy of the invoice
3. Consignee's copy of other shipping documents

The Limited Permit or Certificate must be surrendered by the carrier to the consignee at destination.

Example of a Compliance Agreement for Receiving Mills Approved to Handle, Utilize, or Process Logs, Lumber and Stumps (continued)

Any Limited Permit, Certificate, or Compliance Agreement may be canceled or revoked by officers/cooperators if they determine that the holder of the Limited Permit, Certificate, or Compliance Agreement has not complied with all the conditions of this agreement.

Limited Permits and Certificates are and remain the property of the U.S. Government and must be returned to the officer/cooperator upon request.

Violation of these Federal regulations can result in a criminal penalty of up to a $5,000 fine, a year in jail, or both, or a civil penalty and a fine of up to $1,000 per violation.

APPENDIX 10
How to Complete Certificates (PPQ Form 540)

Purpose:

Certificates (PPQ Form 540) authorize the movement of certified, regulated articles to all destinations. See ***Figure 13-1***. In lieu of PPQ Forms 540, you can use Package Certificates (PPQ Form 527) by adhering them to accompanying paper work such as an invoice where the shipment is described. See ***Figure 13-2***.

Introduction:

Issue a Certificate for the following articles as they relate to the Pine Shoot Beetle Regulation.

1. Pine seedlings less than 36 inches tall with a trunk diameter of 1 inch or less, or screened, greenhouse-grown pine, such as bonsai free from the pine shoot beetle which originate in quarantined areas destined to non-quarantined areas.

2. Pine nursery stock free from the pine shoot beetle which originate in quarantined areas destined to non-quarantined areas.

3. Pine logs and lumber with bark attached which have been fumigated with methyl bromide, originating in quarantined areas destined to non-quarantined areas.

4. Pine logs with bark attached, lumber with bark attached, and stumps of pine trees which were felled and shipped during July 1 through October 31 originating in quarantined areas destined to non-quarantined areas.

Instructions:

Use a ball point pen to complete a Certificate. All the information entered on the Certificate must be legible and accurate. Spell out correctly all names of counties, cities, and towns. If you make a minor error, cross it out and initial it. If you make a major error, destroy the Certificate and make out another.

For a shipment with multiple destinations, issue one Certificate per consignee.

The following numbered sentences correspond with the numbered blocks on a Certificate (PPQ Form 540).

1. Date Issued--Enter the date you issue the Certificate.

2. Void After--Enter a date which allows sufficient but not extensive time for the shipment to reach its destination. An intercepting officer or cooperator looks at this date on the Certificate. If the date has elapsed, then contact the issuing officer for clarification.

3. Name of Consignor--Enter name of shipper at origin.

4. Shipping Point--Enter city and State of origin.

5. Name & Address of Consignee--Enter name and address of company receiving the regulated articles.

6. Vehicle License No. & State--Trailer or tractor number. Line out the block if it is not applicable.

Instructions (continued)

7. R. R. Car Initials & No.--Self explanatory and line out the block if it is not applicable.

8. Description--

a. Quantity--Enter quantity of regulated articles in the shipment.
b. Article--Enter specific regulated articles in the shipment.
c. Remarks--

For pine nursery stock, attest that the nursery stock is free from the pine shoot beetle.

For logs, lumber, or stumps which have been treated, attest that they have been treated in accordance with CFR 301.50-10.

For logs, lumber, or stumps which were felled during July 1 through October 31 of the current year, attest that the logs, lumber, or stumps were felled during July through October of the current year and are free from the pine shoot beetle.

9. Signature of Issuing Inspector/Cooperator--Sign the Certificate and distribute as directed in **Table 13-1** on page 13.6.

Instructions (continued)

B 048489

U.S. DEPARTMENT OF AGRICULTURE
Animal and Plant Health Inspection Service
Plant Protection and Quarantine

CERTIFICATE

This certificate must be surrendered to the consignee at destination of shipment.

The articles described below are certified under all applicable Federal or State cooperative domestic plant quarantines.

1. DATE ISSUED	2. VOID AFTER

3. NAME OF CONSIGNOR

4. SHIPPING POINT

5. NAME & ADDRESS OF CONSIGNEE

6. VEHICLE LICENSE NO. & STATE	7. R. R. CAR INITIALS & NO.

8. DESCRIPTION

QUANTITY A	ARTICLE B	REMARKS C

9. SIGNATURE OF ISSUING INSPECTOR

PENALTY FOR MISUSE OR ALTERATION
(7-USC-163)

PPQ FORM 540
(MAR 80)

Figure 13-1: Sample of a Certificate (PPQ Form 540)

Instructions (continued)

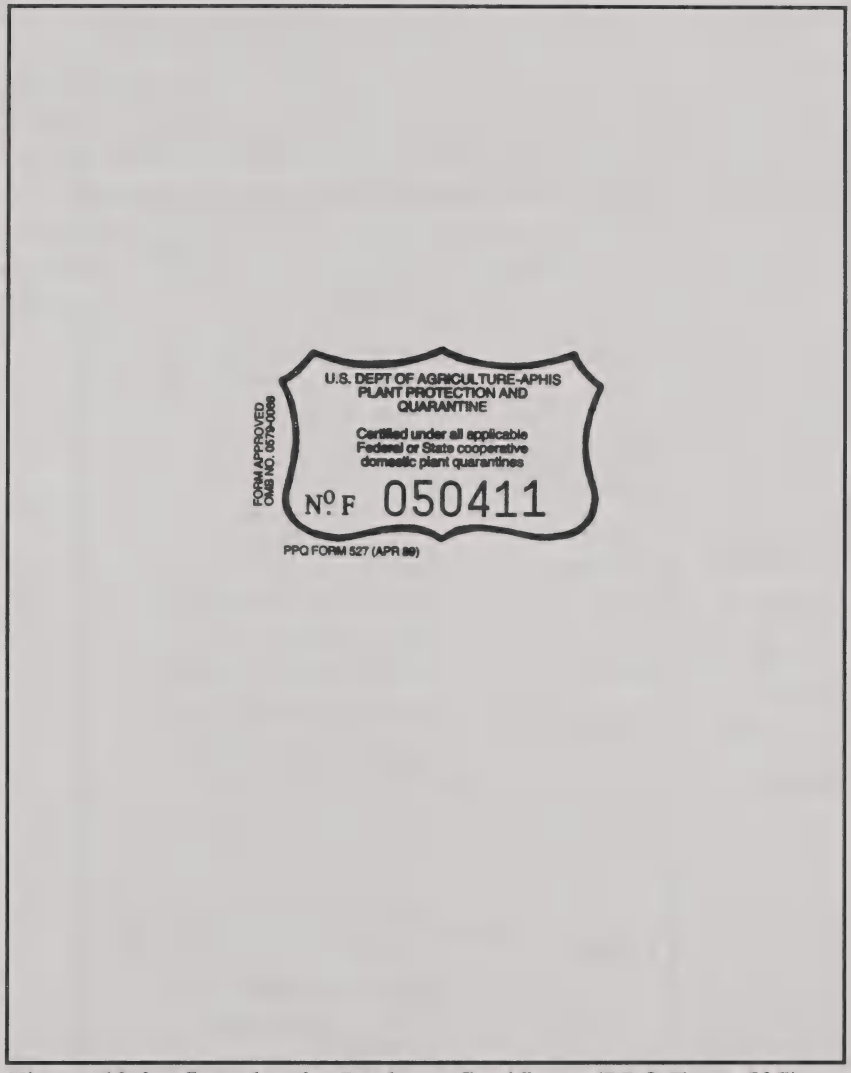


Figure 13-2: Sample of a Package Certificate (PPQ Form 527)

Distribution:

Use Table 13-1 to distribute the copies of the Certificate (PPQ Form 540).

Table 13-1: Distribute the Certificate (PPQ Form 540)

If you are a:	And the copy is:	Then:
PPQ Officer or State cooperator	Yellow (Consignee's copy)	ATTACH to the waybill, invoice, or other shipping document accompanying the shipment
	Green	FORWARD to the PPQ port director or SPHD in the State of origin
	White (Issuing officer's copy)	RETAIN in the book
Person under Compliance Agreement (only for pine seedlings and greenhouse-grown pine, such as bonsai)	Yellow (Consignee's copy)	ATTACH to the waybill, invoice, or other shipping documents accompanying the shipment
	Green	SEND to the PPQ port director or SPHD in the State of origin within 7 days after shipment
	White (Issuing officer's copy)	RETAIN in the book until a PPQ port director, SPHD, or State cooperator requests the book of Certificates
PPQ port director or SPHD in the State of origin	A photocopy	FORWARD to the PPQ port director or SPHD in the State of destination (optional)

APPENDIX 11
Network of Contacts

Sharing current information between PPQ port directors or State plant health directors (SPHD's) and State plant regulatory officers (SPRO's) is critical in the nine States where the pine shoot beetle has been found and where quarantined areas exist. Therefore, use this appendix to locate and contact PPQ port directors or SPHD's and SPRO's who are the contacts for the nine States for information and happenings to the pine shoot beetle program. See **Table 14-1**.

Table 14-1: List of Contacts for Pine Shoot Beetle Information and Happenings in Illinois, Indiana, Maryland, Michigan, New York, Ohio, Pennsylvania, West Virginia, and Wisconsin

State:	PPQ Contact:	State Contact:
IL	Ken Kruse, SPHD USDA-APHIS-PPQ 2400 E. Devon, Ste. 265 Des Plaines, IL 60018 847-299-0024 FAX: 847-299-6046	Stanley E. Smith, Il Department of Agriculture CMS North Suburban, Rm A169 5511 Harrison Street Des Plaines, IL 60016 847-294-4343 FAX: 847-294-4350
IN	Gary Simon, SPHD USDA-APHIS-PPQ 200-B West Washington P.O. Box 113 Frankfort, IN 46041 765-654-7792 FAX: 765-654-8236	Dr. Robert Waltz, Director IN Dept. of Natural Resources Div. of Ento. & Plant Path. 402 W. Washington St. Rm W290 Indianapolis, IN 46204 317-232-4120 FAX: 317-252-2649
MD	Roger West, SPHD USDA, APHIS, PPQ W.A. Cawley, Jr Bldg, Rm 350 50 Harry S Truman Pkwy Annapolis, MD 21401 410-224-3452 FAX: 410-224-1142	Dr. Charles Puffinberger MD Department of Agriculture 50 Harry S Truman Pkwy Annapolis, MD 21401 410- 841-5870 FAX: 410-841-5914

Table 14-1 (continued)

State:	PPQ Contact:	State Contact:
MI	David McKay, SPHD USDA-APHIS-PPQ Intl Terminal Rm 228 Metropolitan Airport Detroit, MI 48242 313-942-9005 FAX: 313-942-7691	Kenneth Rauscher Pesticide and Plant Pest Management Division MI Dept. of Agriculture 611 W. Ottawa St., 4th Floor Lansing, MI 48930-1070 517-373-0880 FAX 517-335-4540
NY	Michael Wright USDA-APHIS-PPQ 1 Winners Circle, Ste. 203 Albany, NY 12205 518-438-3896 FAX: 518-438-7675	Robert Mungari NY Dept. of Agriculture Div. of Plant Industry 1 Winners Circle Albany, NY 12235 518-457-2087 FAX 518-457-1204
OH	John Burch, SPHD USDA-APHIS-PPQ 12927 Stonecreek Dr., NW Pickerington, OH 43147 614-469-2110 FAX: 614-469-6733	David Madison OH Dept. of Agriculture Plant Pest Bldg. 7 8995 East Main Street Reynoldsburg, OH 43068 614-728-6400 FAX: 614-728-6453

Table 14-1 (continued)

State:	PPQ Contact:	State Contact:
PA	Gary Clement, SPHD USDA-APHIS-PPQ 11 Credit Union Place, Suite 310 Harrisburg, PA 17110 717-782- 3419 FAX: 717-782-2254	Lyle Forer, Chief Plant Pathology Division PA Dept. of Agriculture 2301 North Cameron St. Harrisburg, PA 17110-9408 717-787- 4843 FAX: 717-783-3275
WV	Joe Messineo, Jr., SPHD USDA, APHIS, PPQ Route 1, Box 142 Ripley, WV 25271-9724 304-372-8590 FAX: 304-372-8592	Dr. Charles C. Coffman, WV Dept of Agriculture 1900 Kanawha Blvd. East Charleston, WV 25305 304-558-2212 FAX: 304-558-2435
WI	JoAnn Cruse, SPHD USDA, APHIS, PPQ One Gifford Pincot Dr. Bldg 1, Room 204 Madison, WI 53705-2366 608-264-5112 FAX: 608-264-5096	Nicholas J. Neher WI Dept of Agriculture Agricultural Resource Mgt Division, Trade and Consumer Protection 2811 Agriculture Drive Madison, WI 53718-6777 608-224-4567 FAX: 608-224-4656

APPENDIX 12
Illustrations of Survey Traps

Introduction:

Use this appendix to see how three acceptable traps are set up and placed to conduct trapping surveys.

Mechanical Traps:

The Lindgren® and Theysohn® traps require as a lure, two 16 ml bottles of alpha-pinene. Also, these traps require two vapona strips in the collection trays to kill the captured beetles.

See ***Figure 15-1*** for an illustration of a Lindgren® 8 funnel trap and ***Figure 15-2*** for an illustration of a Theysohn® trap.

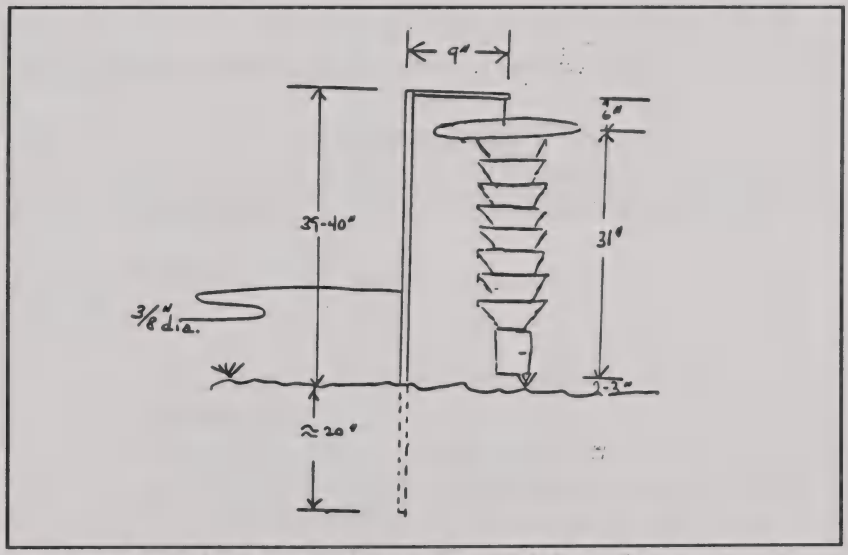


Figure 15-1: Illustration of a Lindgren® 8 funnel trap

NOTE: The bottom of the Lindgren® trap should be elevated approximately 2 inches above the ground to prevent ants and other predators from entering the trap.

Mechanical Traps (continued)

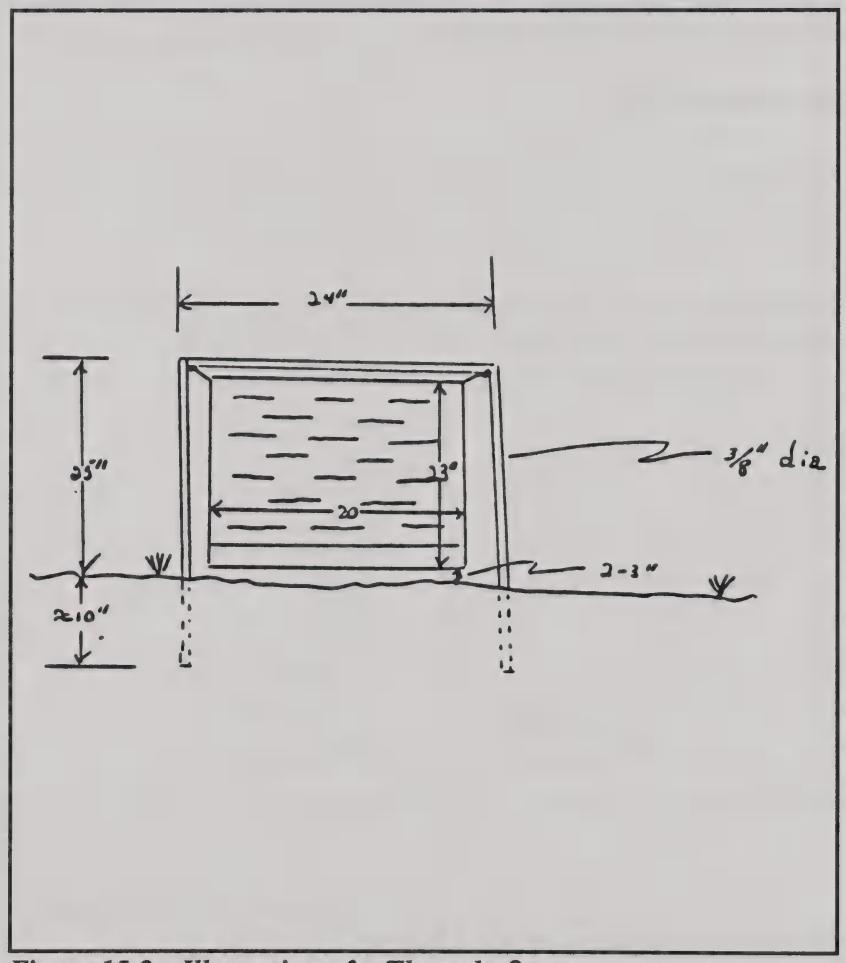


Figure 15-2: Illustration of a Theysohn® trap

NOTE: The bottom of the Theysohn® trap should be elevated approximately 2 inches above the ground to prevent ants and other predators from entering the trap.

Description of Log Traps:

Kind: Any one species of the following pines that have rough bark: Jack pine, red pine, Scotch pine, or Austrian pine. White pine is **not** recommended because it is not preferred by the pine shoot beetle.

Cut logs as soon as practical before using, but no earlier than 3 months before placing traps. (The U.S. Forest Service cuts logs in January to be used in traps in February and March.) The logs should be cut from relatively healthy, young trees that have lower trunks with a diameter greater than 3 inches. (Smaller logs dry out too quickly, making them unsuitable as bait logs for pine shoot beetles.) The trees must come from an area where the survey is being conducted, or from an area that has been demonstrated (10 negative survey sites) to be free from pine shoot beetle.

Size: Cut logs 2 feet long from the rough-bark section on the lower trunk. Avoid using the bottom 12 inches of the tree trunks to ensure that no overwintering beetles are captured in the cut logs.

Set-up: There are various ways to arrange the bait log or logs at a trap site.

- Three logs stacked in a tepee-like or cabin-like arrangement
- Log or logs stacked around or against a tree
- Log or logs vertically leaning against a fence or other object with minimum obstructions to the pine shoot beetles entering any side
- One log placed horizontally above the ground by two other logs, limbs, rocks, or wooden stakes. See ***Figure 15-3***.

Description of Log Traps (continued)

Regardless, the bait log needs to be set-up off the ground a few inches in some manner. Do not place logs directly on the ground because they tend to soak up moisture and become obscured by grass and snow cutting down on the surface area available to the pine shoot beetles.

Depending on the characteristics of the site, place logs in full sun, partial shade, or full shade. It is advantageous to place logs in partially shaded locations because beetles may avoid logs that have high bark temperatures when exposed to the sun. But, in areas where there is heavy snowfall, it may be best to place the logs where the sun would help melt off the snow.

When surveying for the pine shoot beetle, do **not** use a vial of alcohol as an added attractant. As the bait log ages, it produces alcohol. A large concentration of alcohol acts as an inhibitor.

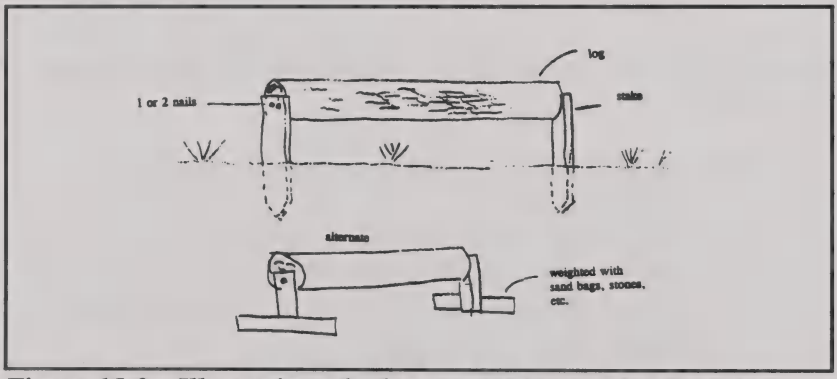


Figure 15-3: Illustration of a log trap where one log is placed horizontally above the ground by wooden stakes

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Compliance Management Program

To be developed

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PINE SHOOT BEETLE PROGRAM MANUAL

Comment Sheet

Directions: Use this sheet to suggest an improvement or to identify a problem in the content of these procedures. After completing, affix postage and drop in the mail.

Description of problem (error, inconsistency, missing or insufficient information, etc.):

Description of improvement or recommended change (add attachments if necessary):

IF YOUR COMMENTS REQUIRE A RESPONSE FROM THE MANUALS UNIT, PLEASE INCLUDE YOUR NAME AND/OR WORK LOCATION.

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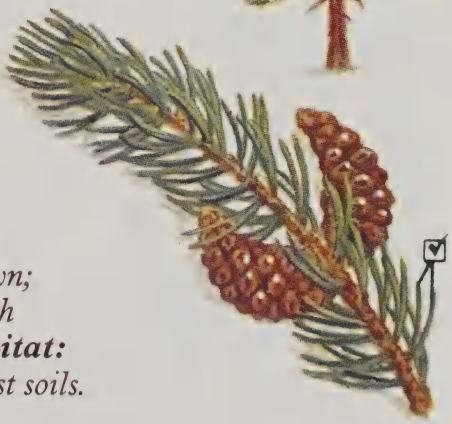
Manuals Unit
7340 Executive Way, Suite A
Frederick, MD 21704

Attn: Dawn Wade

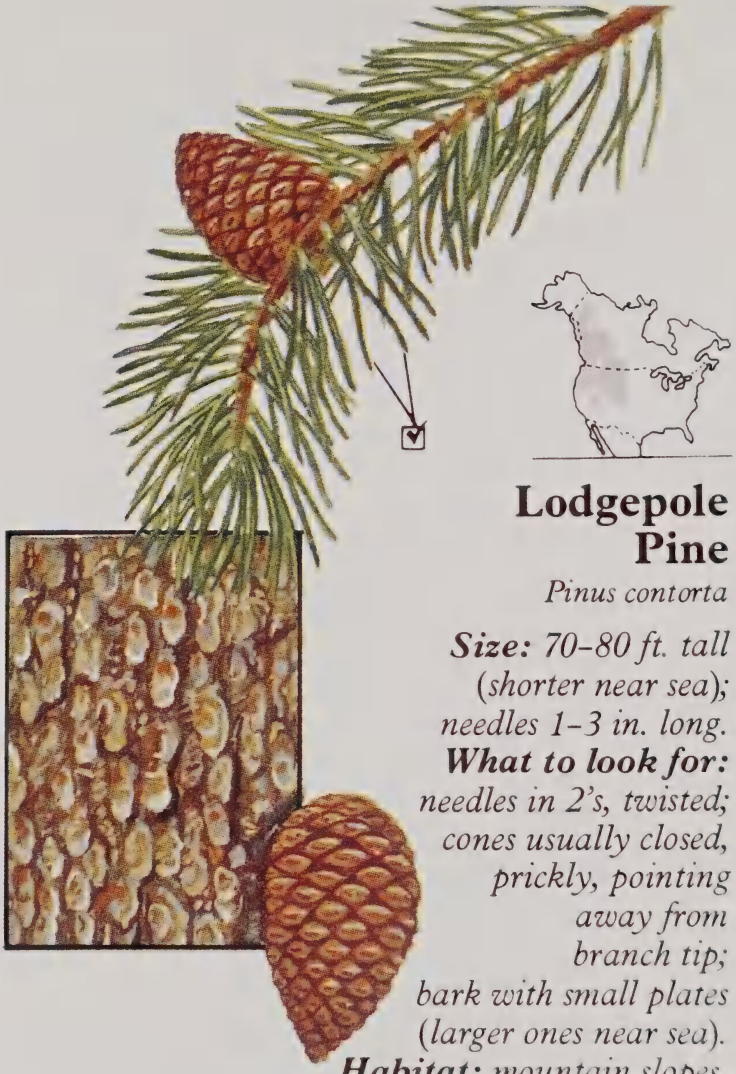
Jack Pine

Pinus banksiana

Size: *30–70 ft. tall; needles ¾–1½ in. long.* ***What to look for:*** *needles in 2's, curved, spread in V; cones usually closed, pointing toward branch tip; bark scaly, red-brown; tree often leaning or with distorted branches.* ***Habitat:*** *dry, sandy plains to moist soils.*



[2-1] Pinus banksiana (Jack pine)



Lodgepole Pine

Pinus contorta

Size: *70–80 ft. tall (shorter near sea); needles 1–3 in. long.*
What to look for: *needles in 2's, twisted; cones usually closed, prickly, pointing away from branch tip; bark with small plates (larger ones near sea).*
Habitat: *mountain slopes, beaches, bogs near sea.*

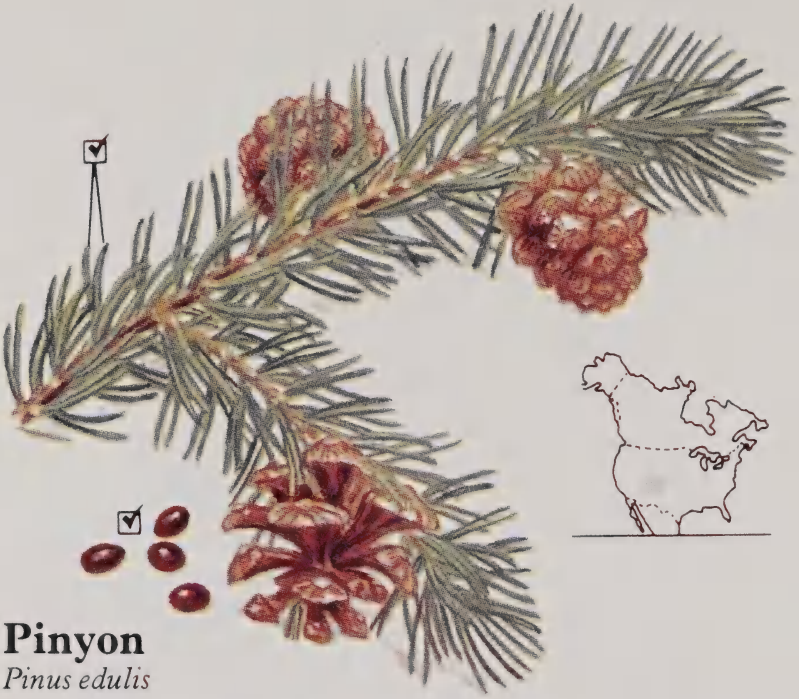
[2-2] Pinus contorta (Lodgepole pine)

Shortleaf Pine

Pinus echinata

Size: *80–100 ft. tall; needles 2½–5 in. long.*
What to look for: *needles in 2's or 3's, dark green; cones with small prickles; bark almost black, scaly (young) or red-brown with large, flat plates (mature); young twigs green, with purplish tinge.*
Habitat: *sandy to dry, gravelly upland soils.*

[2-3] Pinus echinata (shortleaf pine)



Pinyon

Pinus edulis

Size: *20–40 ft. tall; needles ¾–1½ in. long.* ***What to look for:*** *needles in 2's, dark green (*Singleleaf Pinyon, Pinus monophylla, *has solitary needles); cones egg-shaped; seeds wingless, ½ in. long.* ***Habitat:*** *dry foothills, mesas, canyons.*

[2-4] Pinus edulis (pinyon pine)

Slash Pine

Pinus elliottii

Size: *60–100 ft. tall; needles 7–10 in. long.*
What to look for: *needles in 2's or 3's, dark glossy green, bunched near branch tip; cones lustrous, with stem and sharp prickles; bark purple-brown, in plates with thin scales.*
Habitat: *moist, sandy soils; wet depressions.*

[2-5] Pinus elliottii (slash pine)

Sugar Pine

Pinus lambertiana

Size: *160–200 ft. tall; needles 2–4 in. long.*
What to look for: *needles in 5's, twisted; cones very long (10–26 in.).*
Habitat: *cool, moist mountain slopes.*

[2-6] Pinus lambertiana (sugar pine)

Longleaf Pine

Pinus palustris

Size: *80–120 ft. tall; needles 8–18 in. long.*

What to look for: *needles in 3's, bright green, densely bunched at branch tip; cones red-brown, large; bark orange-brown, with rough, scaly plates.*

Habitat: *deep, moist, sandy soils on ridges or knolls; poorly drained flats.*

trees in "grass stage" (three to six years old) have almost no stems

[2-7] Pinus palustris (longleaf pine)

Ponderosa Pine (Western Yellow Pine)

Pinus ponderosa

mature

Size: *150–180 ft. tall; needles 4–7 in. long.*
What to look for: *needles in 2's or 3's, dark yellow-green; cones with fine prickles; bark with large, flat plates overlaid with thin scales, brown to black (trees up to 100 years old) or yellow-brown (older).* ***Habitat:*** *dry mountain soils.*

Red Pine
(Norway Pine) *Pinus resinosa*

Size: *50–80 ft. tall; needles 4–6 in. long.*
What to look for: *needles in 2's, flexible, bunched near branch tips; cone scales without prickles; bark flaky, pink to red-brown (young) or with large, flat plates (mature).*
Habitat: *sandy soils, rocky slopes.*

[2-9] Pinus resinosa (red pine)

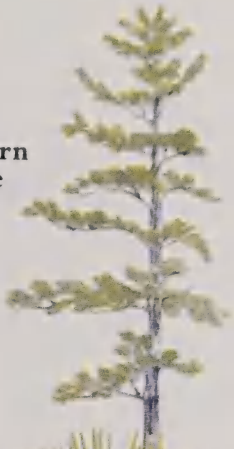
Pitch Pine

Pinus rigida

Size: *50–60 ft. tall; needles 3–5 in. long.*
What to look for: *needles in 3's, twisted, yellow-green, often in tufts on trunk; cones broad at base, with rigid prickles; bark in thick plates, often blackened by fire.* ***Habitat:*** *sandy plains to rocky slopes.*

[2-10] Pinus rigida (pitch pine)

Eastern White Pine

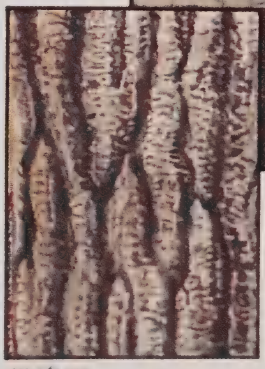


Eastern White Pine

Pinus strobus

Size: *80–100 ft. tall; needles 3–5 in. long.*
What to look for: *needles in 5's; cones resinous; bark smooth, dark green (young) or deeply cracked, dark brown (mature).*
Habitat: *sandy loam, rock ridges, bogs.*

young



mature

[2-11] Pinus strobus (Eastern white pine)

Scotch Pine

Pinus sylvestris

Size: *50–60 ft. tall; needles 1½–3 in. long.*
What to look for: *needles in 2's, twisted, blue-green (yellow-green in winter); bark bright orange, darkens with age.*
Habitat: *shelterbelts, tree plantations.*

[2-12] Pinus sylvestris (Scotch pine)

Loblolly Pine
Pinus taeda
Size: 90–110 ft. tall; needles 6–9 in. long. What to look for: needles in 3's, stiff, yellow-green; cones red-brown, with sharp triangular prickles; bark scaly, nearly black (young) or red-brown (mature); crown open, broad. Habitat: sandy river bottoms and swamps to upland clay soils.
mature

[2-13] Pinus teada (loblolly pine)

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Illustrator: Wayne Trimm.

[4-1] Brood material the beetles use for breeding and reproduction

[4-2] Exit holes in outer bark made by beetles leaving brood material

[4-3] Beetles bore into the center of pine shoots

[4-4] Beetles feed in the center of the pine shoots leaving clean galleries

[4-5] Damaged shoots become discolored (yellow to red) and droop

[4-6] Beetles are black and cylindrical shaped

[4-7] Beetles leave an entrance hole where they entered the shoot

[4-8] Drooping or broken shoots still attached to the tree